F

VALUABLE
SECRETS
CONCERNING
ARTS AND TRADES:
OR, APPROVED
DIRECTIONS, from the beſt ARTISTS,
FOR THE VARIOUS METHODS

- Of engraving on Braſs, Copper, or Steel.
- Of the Compoſition of Metals, and Varniſhes.
- Of Maſtichs and Cements, Sealing-wax, &c.
- Of Colours and Painting, for Carriage Painters.
- Of Painting on Paper.
- Of Compoſitions for Limners.
- Of Tranſparent Colours.
- How to dye Skins or Gloves.
- To colour or varniſh Copper-plate Prints.
- Of Painting on Glaſs.
- Of Colours of all Sorts, for Oil, Water, and Crayons.
- Of the Art of Gilding.
- The Art of dying Woods, Bones, &c.
- The Art of Moulding.
- The Art of making Wines.
- Of the various Compoſitions of Vinegars.
- Of Liquors and Eſſential Oils.
- Of the Confectionary Art.
- Of taking out all Sorts of Spots and Stains.

Hæ tibi erunt Artes! VIRG.

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SECRETS CONCERNING ARTS and TRADES.

CHAP. I.

SECRETS relative to the Art of ENGRAVING.

I. *A wax to lay on iron or ſteel.*

TAKE the bulk of a nut of white wax: melt it, and add to it the ſize of a muſquet ball of ceruſe of *Venice*. When both are incorporated together, form this compoſition into ſmall ſticks. With them rub your piece of ſteel, or iron, after having previouſly warmed it ſufficiently to melt the wax, which you will ſpread well over it with a feather. When the wax is cold, trace whatever you will on it, and paſs afterwards, on the lines you ſhall have drawn, the following water.

II. *A mordant water to engrave on ſteel.*

1. Take good verjuice in grapes, the ſtrongeſt you can find; alum in powder, and a little ſalt dried and pulveriſed. Mix all together till perfectly diſſolved: then paſs ſome of that water on the lines of your drawing, repeating the ſame, till it is ſufficiently deep engraved. That engraving will appear white, as ſilver, on a white ground.

2. Or elſe take verdigriſe, ſtrong vinegar, ammoniac and common ſalts, and copperas, equal parts. Set all together a-boiling, for a quarter of an hour: then ſtrain it through a rag, and run ſome of that water on your

plate. In about half an hour afterwards it will be perfectly engraved.

3. CALLOT's varniſh, of which the compoſition ſhall be found hereafter, in the *Chapter on Varniſhes*, is an admirable compoſition to lay on the plate you propoſe to engrave.

III. *To engrave with* aquafortis, *ſo that the work may appear like a* baſſo relievo.

Take equal parts of vermilion and of black lead: two, or three, grains of maſtick in drops. Grind them all together, on marble, with lintſeed oil; then put this compoſition into a ſhell. Next to this operation, cut ſome ſoft quills, and let your ſteel or iron be well poliſhed. Try firſt, whether your colour runs ſufficiently with your pens: and, if it ſhould not, you muſt add a little more oil to it; without making it, however, too limped; but only ſo as to have your pen mark freely with it, as if you were writing, with ink, on paper. Then rub well your plate of ſteel with wood aſhes, to clean and ungreaſe it; after which, you wipe it with a clean rag, and draw your deſign upon it, with your pen, prepared as before, and dipped into your liquor. If you want to draw birds, or other animals, you muſt only draw the outlines of them with your pen, then fill up the inſide of thoſe lines with a hair-pencil; that is to ſay, you will cover all the ſpace, contained between the firſt outlines drawn with the pen, with the ſame colour, which you will lay with a bruſh, to preſerve all that part againſt the mordacity of the *aquafortis*. When that is done, you let your work dry for a day or two. When dryed thus, you take ſome fire, made with charcoal, into a chaffendiſh, and bake over it your colour, by degrees, till it becomes quite brown. Take care notwithſtanding not to burn it, for fear you ſhould ſcale it when you come to ſcratch, with the point of a needle, thoſe etchings, or places, which you want to be engraved, with the following *aquafortis*.

IV. Aquafortis *for engraving*.

Take verdigriſe, roch alum, Roman vitriol, and common ſalt, of each three ounces; which you will pound into a very fine powder. Have a new pipkin, in which you will put a little more than a quart of water, and your drugs, all together. Let them thus infuſe a couple of hours; then place them over a charcoal fire: and, when the water has a little ſimmered, take the pot from off the fire and let it cool ſo, that you may dip your hand in it without ſcalding. Then have an earthen cup, with which you take of that water, and pour it over the work you mean to engrave; ſo that it may run well, and freely, over all the places which are to be marked, and then off into a pan placed under to receive it. Continue thus to water your work for three quarters of an hour. Then you will pour upon it clear pump water, to waſh off the mud which the *aquafortis* ſhall have occaſioned. You are then to try, with a needle, the depth of the lines of your engraving; and, if not at your liking, you muſt begin again watering it, as before. The only care you are to have, is, that your liquor ſhould not be too warm: for, then, it would ſpoil the work. It is better to uſe it lukewarm only, and be longer at it.

V. *To engrave on braſs, or copper, with* aquafortis.

You muſt put in your colour more maſtick in drops, and bake it alſo rather more over the fire, after it is laid on your plate; ſo that it ſhould turn almoſt black. And, if it be a flat work, as generally are all thoſe on copper plates, you muſt raiſe around it a border of wax to prevent the *aquafortis*, which you are to pour on it, from running off, and which is to be a ſeparating *aquafortis* with which you cover the plate to the thickneſs of a crown piece. After it has been thus left covered with that *aquafortis*, for a little while, this becomes green: then, is the time to throw it away, and to pour, in its place, ſome pump water, when you will examine whether the lines be ſufficiently deep or not. If not, pour again freſh *aquafortis* on your plate, and thus you will obtain works of *baſſo relievo* by contrary; that is to ſay, raiſed grounds. You may thus engrave all ſorts of works.

VI. *To engrave prints, by* aquafortis.

Take ſome ceruſe, which you will grind well with clear pump water, and ſize it with iſinglaſs. Lay this compoſition, with a coarſe bruſh, or pencil, on the plate which you want to engrave. When it is dry, draw on it whatever deſign you pleaſe. Or, if you want to counterproof a copperplate print, blacken all the back of your print; and, placing that blackened part on your plate, prepared as before, go over all the ſtrokes of your print, with a ſmooth ivory, or wooden, point; which will ſtamp the black of the print, in all thoſe places, on the plate. Then you will go again over all the black ſtrokes, which are laid on your plate, with a pen and ink: and, taking afterwards a ſteel point, very fine and well tempered, you will etch your plate with it, in following all the ſtrokes marked on it, and pour *aquafortis*, as before directed.

VII. *Another*.

Take white lead, and grind it well with maſtick in drops. Cover your plate with it by means firſt of a bruſh, and then ſmooth it with the ſoft part of a gooſe feather. Let this dry, for a day or two; then give a ſecond coat, of this compoſition, over the firſt; and ſpread it with the palm of your hand. When dry, bake it over charcoal, till it comes a little yellow; then draw what you will over it, with a black lead pencil; and proceed afterwards, as before directed.

VIII. *The method of engraving with* aquafortis.

1. You muſt have a very well poliſhed plate, and perfectly clean. Set it to warm over a chaſingdiſh, in which there is a charcoal fire. While on it, cover it with a varniſh, either dry or liquid, for there are two ſorts. Then you blacken that varniſh with the flame of a candle, over which you paſs, and repaſs, the plate on the varniſhed ſide.

2. This being done, you have no more to do than to chalk your deſign on that plate, which is infinitely more eaſy than to engrave with the graver. For, if you rub the back part of your drawing with ſome ſanguine ſtone (red chalk) or any thing elſe, and lay it afterwards on your plate, to trace it with a point, the ſanguine, which is on the back of the draught, will eaſily ſet off on the varniſh. So that you may follow afterwards all the lines of the deſign, and be infinitely more

correct in all the turns, and the expreſſion of the figures. This is the reaſon why all the painters, who have their own works engraved, take the trouble of drawing alſo the outlines of their figures, that the ſpirit and beauty of the deſign may be preſerved. Indeed it muſt be confeſſed, that we always diſcover a great deal more art in thoſe pieces which are engraved with *aquafortis*, than there is found in them that are done by the graver. And, even in many of theſe, the *aquafortis* is often employed to ſketch lightly the *contours*, or outlines, of the figures, and to have them more correct.

3. True it is, that it is ſome times found neceſſary to touch a little over, with the graver, certain parts which are not ſtrong enough, or that the *aquafortis* has not eaten in ſufficiently. For it is not eaſy, in a great plate, to get all the ſeveral parts ſo proportionably, and *a-propos*, eaten in, as there ſhould be nothing to find fault with.

4. It is not enough for an engraver to work with the point of his needle, or ſcooper, in all the different places of his work, with the ſtrength and delicacy neceſſary to make appear, as he wants them to be, the moſt remote and the neareſt parts. It is again requiſite that he ſhould take care, when he comes to put the *aquafortis* on his plate, it ſhould not bite equally every where. This is prevented, as follows, by a mixture of oil and tallow, which you will drop in it, from a lighted candle.

5. To this effect he muſt have a framed wooden board, over-laid with wax, on which he fixes his plate a little ſlant way: then pours *aquafortis* on it, ſo that it may only paſs over it, and run into an earthen pan, placed under to receive it. Therefore he takes care to examine when thoſe parts, which are not to be ſo deeply eaten in, have received a ſufficient quantity of *aquafortis*: in which caſe, taking off his plate, he waſhes it with pump water, by pouring it only over; dries it gently before the fire, then covers the moſt remote parts, and them which he wants to preſerve weakeſt, with the above mentioned mixture of oil and tallow, that the *aquafortis* ſhould not act, any more, on thoſe places. Thus, covering at ſeveral times, and as much as he pleaſes,

ſes, ſuch places of his plate as he wants to keep not ſo ſtrong as others, it reſults that the figures, which are forwards in the picture, are conſtantly every time waſhed with the *aquafortis* which eats in them, till he ſees they are ſufficiently engraved, and according to the degree of ſtrength which he is deſirous of giving them.

6. That ſort of *aquafortis* we have mentioned and deſcribed in this chapter at the article of the *water for engraving on iron*, and which is compoſed with verdigriſe, vinegar, common and ammoniac ſalts, and copperas, is alſo made uſe of to engrave on copper, in pouring it on the plates, covered either with hard or ſoft varniſh, and ſcratched, or etched, agreeably to the deſign you intend to engrave on them.

7. As for what concerns the refiner's *aquafortis*, commonly called *white water*, it is never uſed but upon the ſoft varniſh ; and never as the former, which is called *green water*, by pouring it only over the plate, and letting it run off into a pan under it. A border of wax muſt be made round the plate, on which, this being laid flat upon a table, ſome of that *white water* is poured, after having previouſly tempered it more or leſs with a proportionable quantity of common water, which is called *pickling*.

IX. *To engrave on wood.*

You begin by preparing a board, according to the ſize and thickneſs you want it, and finely poliſhed on the ſide it is to be engraved. The ſort of wood, which is generally choſen for ſuch a purpoſe, is either pear-tree or box. And, of the two, this laſt is even ſtill preferable, both on account of its being of a ſuperior hardneſs, and alſo leſs liable to be worm-eaten. On that board you draw firſt your deſign, ſuch as you want it to appear in printing. They, who have not the talent of drawing, as there are a great number, make uſe of the very drawing you give them, which they paſte on their board, by the right ſide, with a paſte made of good flour, water, and a little vinegar. You muſt take care that all the ſtrokes of the drawing ſhould touch well, and ſtick on the wood : and, when the paper is very dry, wet it gently, and with the tip of your finger rub it off by degrees, ſo that the ſtrokes only of the drawing ſhould remain on your board, as if you had drawn it with ink and a pen. Theſe ſtrokes, or lines, ſhew you all that you are to ſpare, or preſerve; all the reſt you are to cut off and ſink down with delicacy by means of a ſharp and well tempered pen-knife, ſmall chiſel, or *gouet*; according to the ſize and delicacy of the work, for you have no need of any other tool.

X. *To engrave on copper with the graver.*

1. When the plate, which is to be of red copper, is well poliſhed, you draw your deſign on it with either the black lead-ſtone or a ſteel point. When that is done, you have no further need of any thing but very ſharp and well tempered gravers to cut in, and give more or leſs ſtrength to certain parts, according to the ſubject, and the figures, you execute.

2. You muſt alſo have a certain tool of ſix inches long, or thereabouts, one of the ends of which, called a ſcraper, is made in the form of a triangle, ſharp on each edge, with which you ſcrape on the copper when you want it. The other end, called a burniſher, has very much the ſhape of a fowl's heart, a little prolonged by the point, round and ſlender. This ſerves to poliſh the copper, to mend the faults, and ſoften the ſtrokes.

3. In order to form a better judgement of your work, you muſt now and then, as you proceed on, make uſe of a ſtump, made with a piece of an old hat rolled up and blackened, with which you rub your plate, on the place you are working, which fills the ſtrokes with black, and makes you ſee better the effect of your work, as you go. You muſt be provided likewiſe with a leather cuſhion, on which you lay your plate, while you engrave it.

4. We ſhall not give any further account of the art of engraving than this ſhort epitome, and we ſhall not attempt to enter into a more particular detail of the various and curious circumſtances attending this noble art. They, whoſe curioſity, on that ſubject, will prompt them to be more particularly acquainted with it, may amply ſatisfy themſelves, by taking the trouble to read the treatiſe which *Abraham Boſſe* has purpoſely compoſed, on the art of engraving.

XI. *To engrave on ſteel or iron; ſuch as blades of ſwords, knives, &c.*

1. Take one part of linden-tree coals; two of vitriol, and as much of ammoniac ſalt. Grind all together with vinegar, ſo as to obtain a ſoft paſte of it. Then, whatever you want to engrave on ſteel or iron, begin firſt by ſketching it with vermilion diluted with lintſeed oil, which you ſhall have put a-drying to uſe it afterwards like a pencil. When your drawing is done, cover it with the above mentioned paſte to the thickneſs of a finger. This compoſition muſt be applied warm; and the more warm it is, the ſooner the work will be engraved; though you muſt have care not to burn it. When this compoſition is well dry, take that powder off, and waſh well the engraved place.

2. You may to the ſame effect take Spaniſh verdigriſe, or common ſalt, one part; and while you pound it in a mortar, add ſome very ſtrong vinegar, and proceed as above.

3. Some make uſe of vitriol, alum, common ſalt, and linden-tree coals, which they prepare and uſe as above directed.

XII. *A water to engrave on iron or copper.*

1. Take Spaniſh verdigriſe, ſublimate mercury, vitriol, and alum, equal parts. Pound it all well in a mortar, and put it in a glaſs veſſel ſufficiently large, with a proportionable quantity of the ſtrongeſt diſtilled vinegar. Let the whole thus infuſe for twelve hours, ſtirring it often. Draw next what deſign you like on a coat of wax laid on your iron, or copper, either with a ſteel point, or fictitious ocher, mixed with lintſeed oil. Then paſs ſome of your liquor on the places you ſhall have etched with a needle or ſteel point, in following carefully the ſtrokes of your deſign, if it be firſt drawn on wax. For, in the uſe of this method, you muſt not fail to begin by covering firſt your plate with it, as we ſaid elſewhere. You may again lay on your deſign, prepared as we ſaid, ſome ſublimate alone, finely pulveriſed: then pour over it good ſtrong vinegar, which you will let lay for the ſpace of half an hour, after which waſh it with cold water, and clean off your plate.

XIII. *Another more mordant water.*

1. Take Spaniſh verdigriſe, *alumen plumeum*, ammoniac ſalt, tartar, vitriol, and common ſalt, of each a quarter of an ounce. When the whole is well pounded, and mixed with the ſtrongeſt vinegar, let it thus remain for the ſpace of half an hour. If you want to have your deſign raiſed, make it with factitious ocher and lintſeed oil, well ground and mixed together, and let it dry perfectly. Then ſet the aforeſaid water a-warming over the fire in an iron pan well tinned with lead; and, leaving it on the fire, take your ſteel plate, and holding it in one hand over the pan, take with the other of the warm liquor, with a ſpoon, and pour it on your plate; ſo that, by falling again into the pan, you loſe none of your water. Continue ſo doing, for a quarter of an hour's time: taking care, however, your water ſhould not be too warm, leſt is ſhould ſet a-running the oil which is mixed with the varniſh. When this is done, rub the aforeſaid compoſition with pot-aſhes mixed with an equal quantity of quick lime in powder, and you will find that what was covered with the compoſition will be preſerved, and raiſed from the other parts of the plate which are eaten down.

XIV. *An* ardent water *to engrave ſteel deeply, or even eat it off entirely.*

Take two quarts, or thereabout, of thick black wine, the oldeſt and the beſt you can find. Diſſolve into it quick lime, and brimſtone in powder, wine tartar and white ſalt, of each equal parts, and as much of the whole as there can poſſibly be diſſolved in that quantity of wine. You ſhall next put all that mixture into a *cucurbit*, or rather in a *retort* well luted. Adapt to it a *bolt-head* to ſerve as a receiver. Lute well the joints, then give it the heat gradually. There will diſtill a very mordant water, which you may keep in a phial, carefully ſtopped, for uſe.

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CHAP. II.

SECRETS relative to METALS.

I. *A ſecret to cauſe the tranſmutation of iron into the fineſt German ſteel.*

1. TAKE of clean ſoot one pound; oak-wood aſhes twelve ounces, and four of pounded garlicks. Boil all together in twelve pounds of common water, reduced to a third, or four pounds. Strain this, and dip in it the iron pegs, which you will afterwards ſtratify with the following cement.

2. Take burnt wood's coals, otherwiſe called *cokes*, and quick lime, of each three pounds: ſoot dried, and calcinated in an iron pan, one pound: decrepitate ſalt, four ounces. Make of this and your iron ſeveral beds alternately one over another; and, having well luted the veſſels in which you ſhall have made thoſe beds of iron and cement, give them a reverberating fire, for three times twenty-four hours, and the operation is done.

II. *To make tin.*

Take a diſcretionable quantity of rye-bran quite pure, boil it a minute or two in vinegar, then add to it a little water, and in that ſame inſtant plunge your ſheets of black iron: then take out of the fire, and ſtop well the veſſel. Let your iron reſt there and ſoak for twenty-four hours, after which time take off your iron ſheets; ſcore them well with the very bran with which they have been a-ſoaking, then rub them over a little with grindſtones. This being done, make them ſoak again in a water wherein you ſhall have diſſolved ſome ammoniac ſalt, whence having taken them off, ſet them a-draining, and rub them afterwards with rye-bran, and your *tin* will be done.

Obſerve that the veſſel in which you lay your ſheets ſoaking, muſt be large enough to receive them in their full intended ſize.

III. *To break an iron bar as big as the arm.*

Take melted ſoap with which you will rub your iron bar at the place where you would have it break. Then with any thing take off and clean away part of that unction, in the middle of it, about the width of half a crown. Then take a ſponge, dipt into ardent water of three diſtillations; bring it round the bar, and, in ſix hours, it will break.

IV. *Another for the ſame purpoſe.*

In two pounds of *aquafortis*, diſſolve orpine, ſulphur, regal, and verdigriſe, one ounce of each; of quick-lime, killed in two ounces of triple-diſtilled vinegar, one ounce. Place the whole in an alembic with one ounce of ſaltpetre, and two of ammoniac ſalt: and, having given a gradual fire to it, you will take the ſpirits which ſhall have diſtilled, and put them again over the *fæces* or reſidue, with an addition of two ounces of pulveriſed arſenic. Diſtill this a-new, and keep what ariſes from it. In this, if you dip an handkerchief and turn it round an iron bar, in three hours time it will break with the greateſt eaſe. You muſt only take a great care to guard yourſelf againſt the fumes, in diſtilling this compoſition.

V. *To compoſe a metal of a gold colour.*

Take refiner's copper ſix ounces: melt them into a crucible; add one ounce of calaminary ſtone; half an ounce of tuty, and one of *terra merita*, in powder. Give to this a melting fire for five or ſix hours running, and no more: then take off the crucible from the fire. Put this compoſition in powder, and add to it two ounces of common mercury, ſix of ſea-ſalt exſiccated, and a ſufficient quantity of water. Set the whole a-boiling, until there appear no more mercury. Then put the matter into a crucible, and place it between two fires of kindled coals, avoiding carefully the breathing of the fumes. Give this a melting fire, for two hours, then waſh the compoſition in water, till this runs off quite clear. Set this again in a crucible: and, when melted, pour it into an ingot. This will give you a metal, of the moſt beautiful gold colour which can be deſired, and which you may make uſe of for plates, buckles, ſnuff-boxes, cane-heads, &c. But one cannot recommend too much the avoiding of breathing the fumes of this compoſition, while it is making.

VI. *Another compoſition of metal.*

Take a certain reaſonable quantity of the leaves of *Perſicaria urens*, called *Arſmart*, or, vulgarly, Water-pepper, which you will dry in the ſhade. Melt in a crucible ſix ounces of refiner's copper, and, when melted, throw in one ounce of powder of the arſmart's leaves, or even half an ounce; then cover the crucible with an iron lid, and keep this matter in fuſion for the ſpace of one hour, after which you caſt it in an ingot. This proceſs will give you a metal which (except the colour that artiſts can at any time give it by an induſtry well known to them) has otherwiſe all the qualities of gold. The only defect is, that it cannot bear teſting, and that it muſt therefore ſerve only to ſupply common copper which ruſts eaſily, and has not ſo much brightneſs. It may be uſed for candleſticks, and other ſimilar works.

We thought it was proper here to give this receipt, as it is to be wiſhed we could make ourſelves thoſe metallic compoſitions, which we import from Holland, and other coutries.

VII. *To diſſolve gold in your naked hand.*

Diſtill hart's blood juſt killed: and, after having drawn the ſpirits *per aſcenſum* in *balneo-mariæ*, cohobate again three different times. At the third diſtillation you ſublime all the fixt: and, when done, lute well the veſſel, and keep the liquor for uſe. This liquor, carefully preſerved, will diſſolve gold in the naked palm of your hand.

VIII. *How to give ſome perfection to imperfect metals.*

It is well known that gold is the moſt perfect of metals. After this comes ſilver, the principles of which are very near pure, and equally proportioned between them as thoſe of gold. All other metals are reckoned imperfect and crude. Among them however that which approaches neareſt to perfection, is copper. This therefore may eaſily be purified, by being delivered of all the ſuperficial and combuſtible ſulphurs with which it is loaded. And whoever will proceed, according to the following direction, will not fail to obtain it.

1. Take what quantity you pleaſe of copper. Set it in a crucible over a melting fire. While melting in that crucible, throw in at different times ſome tutty powder mixed with equal parts of refined ſaltpetre. Then, the detonations being made, take the crucible out of the fire and let it cool. Break the crucible and ſeparate the ſcories from the regulus. Put the copper-regulus into another crucible, and reiterate the ſame operation three times, till the copper is extremely fine and true gold colour.

2. Now, if you ſet it a-melting for the fourth time, and project on it perſicaria's or hydro-pepper's leaves powder, you will render it ſtill more perfect: and you might thus purify it ſo far, as to give it, at laſt, all the qualities of gold.

3. Whoever will know how to purify braſs from its foreign ſulphur, will turn it likewiſe into a very fine ſilver.

4. You may alſo whiten lead; and, giving it the hardneſs of ſilver, render it ſimilar to it.

5. Pewter and quickſilver may likewiſe be purified, in ſeparating from this laſt its arſenical ſulphurs, and fixing it by the ſupplement of a fixt, metallic, incombuſtible and ſolary ſulphur. The other may, by taking off from it its ſuperfluous ſaline part, and uniting its mercurial one to the true metallic ſulphur. But this we cannot expect to attain, if not previouſly verſed in the method of diſſolving, analyſing, and dividing or ſeparating, and then re-embodying again metallic ſubſtances; and this is known by none but the ſons of the art, the adepts alone.

IX. *To melt all ſorts of metals in the ſhell of a nut, without burning it.*

Take ſaltpetre two ounces; ſulphur half an ounce; oak's, walnut trees, or any other very dry wood's ſaw-duſt half an ounce. Let the ſaw-duſt be ſifted very fine, and the ſaltpetre and ſulphur reduced to an impalpable powder. All this being well mixed together, fill the ſhell of a nut with it to the brim; then lay over it a piece of gold, ſilver, or any other metal you pleaſe; and, having covered it again with the ſame powder, ſet the fire to it, and you will ſee that the metal will melt and remain at the bottom of the ſhell.

X. *To increaſe the virtue of a loadſtone.*

You muſt let it ſoak, for forty days, in iron-oil.

XI. *To reſtore gold to its weight, after it has loſt it in regal water.*

Put a bit of *tortoiſe ſhell* to ſoak, for ſome time, in regal water. Then put your gold in it, and, by that means, it will recover its loſt weight.

XII. *To operate the tranſmutation of ſilver into gold.*

1. Get a new iron-pan to grow red hot upon a trivet, and then put two pounds of lead in it. As ſoon as this is melted, throw over it, by degrees, ſome good ſaltpetre pulveriſed. This will melt likewiſe. Keep it thus in fuſion till it is at leaſt half diſſipated. Should it take fire during that time, it does not ſignify; for, it hurts nothing, and the more concocted over again the ſaltpetre is, the ſtronger is the oil.

2. Let this cool, divide the ſaltpetre from the lead. After having well pounded it on a marble ſtone, carry it into the cellar. There, it will fall into *deliquium* which you will pour into a cucurbit, with double its weight of true French ſpirit of wine, added by little and little at a time; then diſtil by a ſlow fire. Grind on marble, as before, what remains in the cucurbit: and, being turned into *deliquium*, put it again into the cucurbit with ſome more ſpirit of wine. Take off theſe diſſolutions and cohobations, repeating the ſame proceſs over again as before, till the ſaltpetre remains at the bottom of the cucurbit reſolved into a true oil which congeals itſelf no longer, and this will procure you what is called the Fix-balm.

3. Next to that operation, you will make an *aquafortis* with equal parts of ſalt-petre, dried vitriol, and roch alum: and, before you put the receiver to the cucurbit, add ſteel-filings, antimony, verdigriſe, in ſubtile powder, tutty and cinnabar, of each half an ounce, or one ounce, according to the quantity of *aquafortis* you want to draw. Cohobate the ſpirits ſeven times over, upon the *fæces*, which you will grind each time on a marble table.

4. Diſſolve one ounce of ſilver in three of this liquor: and, on that ſolution, ſtill, drop by drop, one ounce of

your nitre-oil in a bottle made like the hour-glaſſes, which after the operation muſt be at moſt only half-full, and which you will cover with another inverted, ſo that the neck of the under one ſhould get into that of the upper one. Or, elſe, put it in a matraſs with a long neck, which you will ſeal hermetically; but, if you make uſe of bottles, take care to lute well the joints. Place this over hot aſhes, and plunge it in them to the heighth of ſix inches. Give under this a lamp fire, which ſhould not reach the matter by three fingers diſtance. You will get every day to the amount of a ſilver pennyweight of ſilver fixed into gold. And, when the whole ſhall have been fixed thus, day after day, the *aquafortis*, which before was green as an emerald, will become as clear as pump-water. Let the compoſition cool, and divide the water from the oil, which will never be the worſe for uſe, and muſt therefore be preſerved. At the bottom of the veſſel, you will find the ſilver fixed into gold.

XIII. *Fixation of gold into ſilver*.

1. Sublime, on a ſand fire, ſome arſenic, with an equal weight of decrepitate ſalt. Take the middle and cryſtaline matter which ſublimates, rejecting the ſubtile flour which riſes on the head, and the dregs which remain in the bottom. Sublime over again this cryſtal, and reiterate ſo many times as neceſſary that no flour ſhould longer ſublimate.

2. Calcinate ſome ſilver with mercury, with which amalgamate it, and this as many times as you may find neceſſary, that the water in which you waſh your ſilver, after the diſſipation of the mercury by means of fire, ſhould run as fair and clean as when you poured it over it.

3. Take one ounce of this calcinated ſilver, and four of the aforeſaid arſenic: ſublime the whole ſo many times as neceſſary, that nothing ſhould aſcend any more. This ſublimation may eaſily be performed in a matraſs laid on its ſide, which you muſt turn ſo as to put always underneath what is ſublimed above. By means of ſuch an induſtrious practice you avoid the neceſſity of breaking your matraſſes every time you want to reſublime what was already ſublimed. At laſt the matter turns into a ſtone, which, having pounded, you put

on a digeſting bath, till it is all reduced into a fixt oil, which you know to be done by the tranſparency of the veſſel.

4. Take four parts of mercury, and one of that oil. Put firſt the mercury into the crucible, and, afterwards, this fixt oil. Give a gradual fire, till all the compoſition be reduced into a lump, which adheres to the crucible. Take it out and teſt it; you will find it to be the fineſt ſilver in the world.

XIV. *To extract mercury from lead.*

Take pearl aſhes one pound; vine aſhes four; quick lime one; and pebbles calcinated two. Make a ſtrong lye of the whole with diſtilled vinegar. Diſſolve in this two pounds of lead: and, when the lye is become white, throw in ten ounces of borax. When this is diſſolved, throw the whole into a retort, and diſtil it with a gradual fire. You will get, into the receiver, ten ounces, at leaſt, of quick ſilver.

XV. *Another mercury from lead.*

Take lead filings one pound; ammoniac ſalt four ounces; bricks, pounded into a powder, three pounds. Diſtil this compoſition, in a retort, on a gradual fire. The receiver muſt be very large, half full of water, and the fire muſt be continued for twelve hours, puſhing it, by degrees, to the very laſt.

XVI. *Permutation of lead into ſilver.*

Take fine lead; calcine it with common ſalt, or, elſe, with that ſort of ſalt which is extracted from the dregs, *fæces*, or *caput mortuum* of Saltpetre and vitriol calcinated both together. Soak the whole warmly with oil of vitriol till you make it come into an unctuous paſte. This you will put in a pot, or crucible, well luted, and placed in a pan full of ſand, with which you will cover it over intirely. Make under this a digeſting fire; that is to ſay, ſuch a fire as is neceſſary to warm the ſand: keep it ſo for ten days, then take off your matter and teſt it. Out of *one hundred and five pounds* weight of lead, you will draw *five marcs*, or *two pounds and half* weight, of ſilver capable to ſtand the teſt.

XVII. *Fixation*

XVII. *Fixation of ſaltpetre.*

Melt ſome lead in a crucible, and project on it pulveriſed nitre, reiterating the projections in proportion as the matter fuſes, till it is entirely melted.

XVIII. *Tranſmutation of iron into copper.*

Iron is eaſily changed into copper by means of the vitriol. To do this you put your iron *ſtratum ſuper ſtratum* in a deſcenſorium, and ſet it over a ſtrong blaſt fire, puſhed by bellows, till the iron melts and flows into copper. You muſt not forget when you have made your beds of vitriol, to water them a little over with vinegar ſaturated of ſaltpetre, alkaline, and tarter ſalts and verdigriſe.

XIX. *Another to the ſame purpoſe.*

Pound ſome vitriol in powder, and diſtil the ſpirits from it by means of the retort. Replace the ſpirits on the *caput mortuum,* then plunge and extinguiſh in them ſome red hot iron laminas, or filings: and, by little and little, the iron will turn into copper.

XX. *Another.*

Diſſolve vitriol in common water; paſs it through filtering paper, then evaporate the water unto a *pellicula,* and put it in the cellar, for one night, and you will obtain ſome green cryſtals. Redden them in the fire, then diſſolve them three or four times in diſtilled vinegar, drying them every time, till theſe cryſtals become red. Diſſolve them again in the ſame vinegar and extinguiſh in it ſome red hot iron laminas filings, or any other iron rubbiſh; they, and every one, will, by theſe means, turn into a very fine copper.

XXI. *To preſerve the brightneſs of arms.*

Rub them with hart's marrow. Or, elſe, diſſolve ſome allum powder with the ſtrongeſt vinegar you can find, (that of *Montpellier* which ſerves to make their famous verdigriſe is the fitteſt), and rub your arms with it. By theſe means they keep forever bright and ſhining.

XXII. *To manage ſteel ſo, that it may cut iron as it were lead.*

Draw, by an alembic, the water which will come from a certain quantity of earth-worms; join with this water an equal quantity of horſe-radiſh's juice. Then temper, four or five times, in this liquor your iron kindled red hot. That ſort of ſteel is made uſe of for knives, ſwords, and other inſtruments, with which you may cut iron with as much eaſe as if it were lead.

XXIII. *To ſoften ſteel.*

Take a deſcretionable quantity of garlic, rob them of their coarſeſt peel, then boil them in oil of nuts till reduced into an *unguentum.* Cover well your ſteel all over with that compoſition to the thickneſs of half a crown. When this is done, put your ſteel, thus covered, in the forge, in the live coals, and it will become ſoft. To reſtore it afterwards to the temper, called by artiſts *red cherry colour*, you muſt, after having made it red hot, plunge it in the coldeſt water.

XXIV. *To extract mercury from antimony.*

Take antimony and decrepitate ſalt, of each one pound. Mix them together and put in a retort of two quarts. Set the retort on the bare fire, or on the gradual ſand fire. Let the beak of the retort be in water, and at the bottom of that veſſel, wherein the water is, you will find the running mercury of antimony.

XXV. *A magical mercurial ring.*

Take verdigriſe half a pound, and an equal quantity of copperas. Pulveriſe each of them ſeparately, and put theſe powders into an iron pan which hath never been uſed before for any thing elſe. Boil the whole, for about two minutes, in very ſtrong vinegar. Then throw into the pan half a pound of crude mercury, which you will inceſſantly ſtir with a wooden ſpatula. Begin to boil firſt by a ſlow fire, and never ceaſe to ſtir the whole well for fear of the adheſion of mercury. In proportion as the vinegar ſinks you may add more, not exceeding, however, the quantity of half a pint, or thereabouts. When this has boiled about a couple of hours, the matter will remain in a lump at the bottom of the pan. Let it cool with the ſmall quantity of vinegar which ſhall remain after the ebullition, then throw it into a large pan of cold water. Handle this lump well in that water, in order to purge it from all the *munditiæ*.

Throw that firſt water away, and put clean water in, and do the ſame again and again, keeping handling the matter well in your waters, till the laſt remains clear as rock water. When your mercury is thus well fixed, put it in a clean piece of linnen to take off the ſuperfluous parts; and what remains well fixed after this ſecond trial, you muſt extend on a ſheet of white paper, on which, having flattened it quickly, and cut as haſtily, for fear it ſhould grow too hard, into ſmall bits of the form and ſize you like, you expoſe it to the dew of one night, from the evening to the morning, and then you will find it as hard as iron.

XXVI. *To melt the aforeſaid mercury.*

Take Alexandrian tuty, and *terra merita,* of each half a pound, ſeparately pulveriſed and mixed afterwards together. Stratify your bits of the above mercury, making the firſt and laſt *ſtrata,* or beds, with the powders and a little thicker than the others. Cover your crucible with another, and lute them ſo well that there ſhould no chink remain, which you will examine well after having dried them in an oven. When perfectly dry, place your crucibles in a gold or black-ſmith's furnace, and ſurround them well with live coals every way, by the ſides, top, and bottom, which you will make blaſting for a quarter of an hour; and puſh by ſtrength of bellows during half an hour, then let them cool gradually in the fire till the next day: when, taking off your crucible, you will find your matter turned into a gold colour. Throw it into a pan of water, and waſh it well till the water remains clear. The whole being granulated, put it in a ſmall crucible with half an ounce of borax, and melt it as you would gold or ſilver, then throw in it an ingot. With this matter you will make your rings in drawing this metal through the wiring bench, or otherwiſe.

XXVII. *The virtue of thoſe rings.*

They ſtop the colds in the head, ſhew the diſorders one may be affected with, particularly in thoſe well-known monthly diſeaſes of women. At ſuch times the ring turns of a dull red colour. They are alſo very uſeful in killing the worms in ſmall children, if you make them boil in a varniſhed new pipkin, with a glaſs (or four ounces) of water, reduced to a third, and drunk faſting.

XXVIII. *A fixation of copper which will be found to yield ſix ounces out of eight, on the teſt.*

Take two ounces of fine pewter, which melt in a crucible, adding gradually to it, after it is melted, an equal quantity in weight of flour of ſulphur. When all is calcinated, and while ſtill a little warm, add again to it half an ounce of common purified mercury, ſtirring continually with a ſpatula till the mercury diſappears entirely. There will come a powder, of which if you project one, on four ounces of red copper in fuſion, then ſtir and caſt in ingots, you may obtain the promiſed advantage.

XXIX. *To whiten copper ſo as to make very fine figures with it.*

Take five parts of copper, which you will melt in a crucible, then throw in one part of zinc. As ſoon as the zinc is in it, take it off from the fire, and ſtir the matter a little with an iron rod, then caſt it in the molds of your figures. They will look like ſilver caſted ones.

XXX. *To give the fineſt colour of gold to copper, in order to make ſtatutes, or other works, with it.*

Take one pound of copper, melt it in a crucible, then throw in it one ounce of Alexandrian tuty reduced into a ſubtle powder, and mixed with two ounces of bean-flour. Take care to keep ſtirring this matter, and to guard yourſelf againſt the fumes. After two hours of fuſion, you will take this compoſition off, and waſh it well, and put it again in the crucible with the ſame quantity as before of the ſame powders. When melted, for this ſecond time, you may take it off, and caſt it in the molds you propoſe, and had prepared for it.

XXXI. *To imitate tortoiſe-ſhell on copper.*

Rub copper laminas over with oil of nuts, then dry them over a ſlow fire ſupported, by their extremities, upon ſmall iron bars.

XXXII. *To perform the ſame on horn.*

Make a cold diſſolution of auripigment in filtered lime-water: then, lay ſome of this liquor with a bruſh on your comb or other horn work. Reiterate this, if you find it has not penetrated enough the firſt time, and turn it to do the ſame the other ſide.

XXXIII. *To ſoften metals.*

Take ſaltpetre and camphire equal parts. Diſſolve them in a lye made with two parts of oakwood aſhes and one of quicklime. Paſs this ſolution through a filtering paper, and vaporiſe it over a ſlow fire in a glaſs veſſel. There reſults a borax which, thrown in metals while in fuſion, ſoftens them perfectly.

XXXIV. *To waſh braſs figures over, with ſilver.*

Take one ounce of *aquafortis.* Diſſolve in it over a moderate fire one drachm of good ſilver cut ſmall, or granulated. This ſilver being wholly diſſolved, take the veſſel off from the fire, and throw in it as much white tartar as is required to abſolve all the liquor. The reſt is a paſte with which you may rub over any work made of copper, and which will give it the white colour of ſilver.

XXXV. *To operate the tranſmutation of iron into ſteel.*

Take beech and willow, burn them together. When in coals, extinguiſh them, before they are conſumed, with water, or rather, with chamber-lye. Pound them well, and ſift them through a very fine ſieve. Then burn likewiſe ox horns, and prepare them the ſame way. Sift well alſo ſoot, vine aſhes, burnt ſhoes aſhes, and pomegranates' ſhells' powder, putting aſide and ſeparately each drug by itſelf, and mix them afterwards, when uſed, in the following proportions.—Coals twelve pounds; horns ten; ſhoes, vine, ſoot, and pomegranate, of each equal quantity, three pounds, all well mixed together. To make *one hundred* pounds weight of ſteel, there is required *one hundred and twenty pounds* weight of good, ſoft Spaniſh iron, not ſtreaky: to which, if you give the aforementioned doſe of the ſaid powders, prepared as directed, and put to the fire, for the ſpace of forty-eight hours, you will get the beſt ſteel which can be had.

XXXVI. *Another receipt for the ſame.*

1. Take one buſhel of beech coals pulveriſed and ſifted; alder's coals, thus prepared, one peck; vine aſhes and ſoot, both well pulveriſed and ſifted, equal

parts, half a peck. Mix well theſe powders, and ſtratify your iron bars with them in a crucible well luted; then give a good fire for twenty-four hours.

N. B. Obſerve that you muſt take care to uſe new, and not floted wood, to make the ſaid aſhes.

2. If you want to have your ſteel white, you muſt add to all the above powders one peck of juniper-wood aſhes.

3. If you want it purple, you muſt make a lexiviation of vine and ſhoes aſhes, ſoot and garlick, well pounded, equal parts; and a ſufficient quantity of water to make the ſaid *bullitorium*, in which you will ſteep, cold, your iron bars before you cement them.

4. You muſt proportionate the quantity of wind-holes in each kiln to the quantity of bars, and of crucibles, for which you intend to fit it.

5. The *ſtratum ſuper ſtratum* ought to be made one, or, one and an half, inch thick of powder to each bed.—The bars ought to be ranged croſs-way one over another; and large crucibles are to be prefered to ſmall ones.—You muſt take care to have them ſo well luted, as not to allow the leaſt air to find its way in; for there would reſult an intire miſcarriage of the whole operation; and, beſides, your powder would hence loſe all its virtue.—Should you likewiſe let it get air before you make uſe of it, it would become quite dead and flat. Therefore you are cautioned to keep it always very cloſely confined, in well-ſtopped veſſels, of whatever kind they may be.—That which comes off from the crucible, after the operation, is not worſe for having been thus in uſe. It wants, therefore, nothing but an additional ſupply of freſh powder, joined to it, to make up what is loſt, or diminiſhed, by the frequent handlings of it, in taking it out, and putting it in, the crucibles again.

6. The kiln ought to be wide by the inferior part, and go narrowly towards the top, which muſt end in a conical form. By ſuch means, the heat contracted becomes ſtrong, and acts with infinitely more power.—Neither muſt you neglect to have it ſo conſtructed as to be provided with an aſh-hole, or a place underneath wherein the aſhes may fall; and ſeveral openings to let the wind eſcape.

†* *An eſtimate of the coſts, and profits, of ſuch an operation in* France.

The thouſand weight of iron, in bars flat on one ſide, oſts about *ſixty livres*. Two thouſands being requiſite, a time, for one ſingle operation, make *one hundred d twenty livres*, or, *five pounds* ſterling.

Ten crucibles this will employ; *ten livres*.

Powders for the two thouſands; *forty livres*.

For two men to ſit up, and watch, in order to keep up the fire; *four livres*.

To prepare the ſteel, after it is out of the crucibles, and render it marketable; *twenty livres*.

All the expence amounts to *two hundred livres*, or *ht pounds eight*, or *ten*, *ſhillings ſterling*, or thereabout. n, thus turned into ſteel, whether white or purple, nes, on computation, to two *ſols*, or one penny, a und; which makes *one hundred livres* per *thouſand* ight.—Thus, the two thouſands weight, which may made in the ſame kiln, every week, come to *two ndred livres*.

If you ſell your ſteel, on the footing of *ſix ſols* per und, there is, clear profit, *four hundred livres* a week; hich, in a year, would make 20,800 *livres*.—Now, u may, on this calculation, have as many kilns as you eaſe; and each kiln may make a kilnful every week.

XXXVII. *To take immediately ruſt from iron.*

You muſt rub your iron with a piece of rag ſteeped o oil of tartar *per deliquium*.

XXXVIII. *To obtain good ſilver from pewter.*

1. Take quick lime made from rock or tranſparent bbles, and one pound of common ſalt. With thoſe two gredients make a ſtrong lye which you will evapo-e on the fire to the reduction of one third part of what made before. Next, melt in a crucible two pounds pewter, to which, after fuſion, you will add one und of *haematitas*. The whole being well incorpo-ed and melted, throw it in part of your aforeſaid lye: d, when quite cold, melt it again, and throw it again o new lye, repeating the ſame proceſs for ſeven dif-ent times, and uſing freſh lye, prepared as above, ev- time.

2. The

parts, half a peck. Mix well theſe powders, and ſtratify your iron bars with them in a crucible well luted; then give a good fire for twenty-four hours.

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Ten crucibles this will employ; *ten livres.*
Powders for the two thouſands; *forty livres.*
For two men to ſit up, and watch, in order to keep up the fire; *four livres.*
To prepare the ſteel, after it is out of the crucibles, and render it marketable; *twenty livres.*

All the expence amounts to *two hundred livres*, or *eight pounds eight*, or *ten*, *ſhillings ſterling*, or thereabout. Iron, thus turned into ſteel, whether white or purple, comes, on computation, to two *ſols*, or one penny, a pound; which makes *one hundred livres* per *thouſand* weight.—Thus, the two thouſands weight, which may be made in the ſame kiln, every week, come to *two hundred livres.*

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2. The next operation is to take one ounce of ammoniac ſalt, an equal quantity of borax, eight ſcruples of auripigment, reduce them into a very fine and ſubtile powder, and being mixed together, incorporate them into a paſte with the whites of two new-laid eggs, and put all together with the pewter, ready prepared as before mentioned, in a crucible. When all is in fuſion, continue the fire for one hour; then, take off the crucible. There you will find your ſilver, fit to ſtand the teſt of all the aſſayers.

XXXIX. *To ſoften iron.*

Take half an ounce of tartar; two of common ſalt; and two and a half of verdigriſe. Mix all together, and expoſe it in a porringer to the dew of nine nights running. This will turn into water, in which, when red-hot, you may kill your iron.

XL. *To melt iron ſo that it will ſpread under the hammer.*

Take equal quantities of lime, tartar, and alkali ſalt. Pour over it a ſufficient quantity of cow-piſs; to make a thick pap with it, which you will ſet a-drying in the ſun, or before the fire. Make an iron red-hot in the fire; then, plunge it in that matter. You may afterwards melt it as you would ſilver; and, then, work it the ſame way, when cold.

XLI. *To give iron a temper to cut porphyry.*

Make your iron red-hot, and plunge it in diſtilled water from nettles, acanthus, and *piloſella* (or mouſe-ears); or in the very juice pounded out from theſe plants.

XLII. *To ſoften all ſorts of metals.*

Take ſublimate mercury, euphorbium, borax, and ammoniac ſalt, of each equal parts pulveriſed. Project ſome of that powder over any metal when in a ſtate of fuſion, and you will obtain the deſired effect of making it ſoft.

XLIII. *To ſoften a ſophiſtic metal.*

Take black ſoap and common ſalt, of each two ounces; human excrements dried and pulveriſed, four ounces; rock alum an equal quantity, and nitre ſalt, half an ounce. Incorporate all together in a pan, over the fire, with bullock's gall, keeping ſtirring with a ſpatula, till you feel no longer with it any ſaline particle. Then take off the pan from the fire, and let the compoſition cool. Of this you may throw ſome into the crucible in which your metal is in fuſion.

XLIV. *A good temper for arms.*

Take tythimalus, or ſpurge; roots of wild horſe-radiſh, bryonia, and purſlain, of each equal quantities. Pound all together, ſo that you may get at leaſt one pound of juice. Add to this one pound of red-haired child's water; ſaltpetre, alkaline, gem and ammoniac ſalts, of each one drachm. When you have mixed all well together in a glaſs veſſel perfectly cloſed and ſtopped, bury it in the cellar, and let it there lie for twenty days. Then bring it up again, and put it in a retort, to which you will adapt and lute well its receiver, and begin to diſtil by a gradual fire. Now, when you want to get arms of a good temper, you have only to plunge them in this diſtilled liquor, after having previouſly made them red hot in the fire.

XLV. *Another very hard temper.*

Take nettles' juice, bullock's gall, child's water, or ſtrong vinegar, and a little ſalt. Incorporate well all this together, and plunge any red hot iron in it.

XLVI. *To melt iron and make it ſoft.*

Take two pounds of auripigment, and four of oil of tartar. Make the auripigment ſoak up all the oil of tartar, and dry it up afterwards over a ſoft fire. Then put ſmall bits of iron in a crucible; and, when very red, throw by little at a time about half a pound of that auripigment prepared as before; and you will find your iron ſoft and white.

XLVII. *To whiten iron like ſilver.*

Melt iron filings in a crucible, along with realgar, or red arſenic. Then take one ounce of that matter and one of copper; melt all together, and put it in a coppel. It will give you one ounce of good ſilver.

XLVIII. *To render iron brittle, ſo as to pound like glaſs.*

Take the diſtilled water from rock alum, plunge in it ſeven different times your pieces of iron, or ſteel, beaten very thin, and made red hot every time. This operation will render them ſo brittle, that you may pound them in a mortar, afterwards, as you could glaſs.

XLIX. *Ingredients which ſerve to the melting of iron.*

Iron is to be melted with any of the following ingredients; *viz.* pewter, lead, marcaſite, magneſia, auripigment, antimony, crown-glaſs, ſulphur, ammoniac ſalt, citrine-mirobolans, green, or freſh, pomegranate rinds, *&c. &c.*

L. *To melt or calcinate the blade of a ſword without hurting the ſcabbard.*

You muſt drop into the ſcabbard of the ſword ſome arſenic in powder, and ſqueeze over it ſome part of the juice of a lemon. Then replace the ſword into its ſcabbard. In a quarter of an hour afterwards, or little more, you will ſee what a ſurpriſing effect this will have.

LI. *A ſpirit which will diſſolve all ſorts of ſtones, without excepting the moſt hard.*

Take rye-flour and make ſmall balls with it, which you will dry; then put them into a retort well luted, and place it over a gradual fire to draw the ſpirits by diſtillation. If in the ſpiritous liquor, which will come from this operation, you put any ſtone whatever, it will diſſolve.

LII. *To refine pewter.*

Take fine pewter, and put it into a crucible. When melted, project over it, at different times, ſome nitre, till it comes to a perfect calcination. Repeat this three different times, pounding the matter into powder, which you will mix with charcoal's duſt. Then, being thus melted for the third time, it will reſume its former ſubſtance of pewter, with this difference, that it will be refined to an infinitely ſuperior degree.

LIII. *To fix mercury.*

Take verdigriſe in powder, which you will put in a crucible. Make a hole in that powder, and place in it a knot of mercury previouſly impregnated with white of eggs' water. Cover this knot over with borax, and add again over this ſome more verdigriſe and pounded glaſs, one or two fingers deep. Lute well the lid of the crucible, and give a pretty ſmart fire, though gradually, and not at once, for the ſpace of two hours.

LIV. *To extract mercury from lead.*

Take lead and beat it into ſheets, or laminas, very fine. Put theſe in a glaſs veſſel with common ſalts, a double quantity of the lead. Cover this well, and bury it under ground for nine days at leaſt. After that time, if you open the veſſel again, you will find your lead turned all into running mercury, or quickſilver, at the bottom of it.

LV. *The compoſition of caſt mirrors and cylinders.*

Take one pound and a half of red copper; eight ounces of refined pewter; one and a half of ſtellated marsregulus, otherwiſe regulus of antimony; half an ounce of biſmuth; one and an half of nitre, and a diſcretionable quantity (that is to ſay as much as you pleaſe) of ſilver.

LVI. *The true compoſition of metallic mirrors, or loooking-glaſſes, uſed among the ancients.*

1. Take one pound of decapitated, or well purified, copper, which you will melt; then throw over it three pounds of refined pewter. As ſoon as they ſhall be both in good fuſion, add ſix ounces of calcined red tartar, two of arſenic, half an ounce of ſaltpetre, and two drachms of alum. Leave all this in fuſion together for the ſpace of three, or four, hours, that all the ſalts may well evaporate, then you will caſt this compoſition in the flat ſand mould prepared for it.

2. To give theſe mirrors the requiſite poliſh, you proceed as follows. Begin firſt by taking the coarſeſt part away with the wheel over a grinding-ſtone, after the ſame method as the pewterers and braziers do, and then you ſmoothen them with water till they are ſufficiently poliſhed by attrition. The ſecond ſtep is to take the mirror from that wheel, and put it on the wooden one covered with leather, after having rubbed it well with emery in order to give it a fine poliſh, and

eat off the ſcratches which may have happened to it on the firſt wheel. Then you muſt take it again from this wheel and put it on another of the ſame kind, covered likewiſe with leather, after having previouſly rubbed your mirror with prepared blood-ſtone, and waſhing it afterwards with magiſter of pewter. Take notice that you are to make your mirrors obſerve, on both theſe laſt leathered wheels, the ſame oblique direction in turning them, and continue ſo long till the mirror has acquired a ſufficient fineneſs and brightneſs.

Convex and ardent mirrors are rubbed and poliſhed in the ſame manner.

LVII. *To make convex and ardent mirrors.*

1. Take one pound of copper in laminas. Cut them in ſmall pieces to get them into a crucible, and impregnate them with oil of tartar. Then take a quarter of a pound of white arſenic in powder, with which you will ſtratify your laminas, putting bed upon bed till the crucible is full. Cover this crucible with a lid of the ſame earth; lute it well and ſet it to dry. When done, plunge it to the lid in the ſand, and give it a gradual fire, till it is ſtrong enough to evaporate the oil. During that time the oil prepares the copper, in detaining the arſenic and making it paſs into it with the ſame facility as oil paſſes through leather.—You may, if you chuſe, place your crucible in the furnace on the bare fire; but then you muſt manage the fire gradually till the oil is quite evaporated. This being done, let the crucible cool, and break it; you will find your copper variegated with ſeveral colours, and it would be ſtill more ſo, if, inſtead of arſenic, you had uſed auripigment.

2. Take of this copper one part, and two of braſs. Melt firſt the braſs on a blaſting fire; then throw in your prepared copper. When they ſhall have been in good fuſion a pretty good while, throw this metal into a pan full of lukewarm water, over which you ſhall have placed a birch-broom, to force your metal to granulate in falling through its twigs into the water. By ſuch precaution your metal will be ſo hard as to reſiſt the file; will not be brittle; and acquire the ſame qualities as

ſteel, inſtead of which you may even employ it, on many occaſions, for various ſorts of works.

3. Now take of this hardened metal three parts; of the beſt Cornwall pewter, and perfectly free from lead, one part. Melt firſt the metal, as we ſaid before, on a blaſting fire, then put your pewter to it; and, when both are well melted together, you will throw this compoſition in the convex mould to make the concave, and in the concave to make the convex mirrors. This compoſition is the beſt which can be employed for the manufacturing of theſe ſorts of mirrors. It is white, hard, never brittle, and ſuſceptible of receiving the higheſt and moſt finiſhed poliſh.

LVIII. *To give tools ſuch a temper, as will enable them to ſaw marble.*

Make the tool red hot in the fire; and, when red cherry-colour, take it off from the fire, rub it with a piece of candle, and ſteep it immediately in good ſtrong vinegar, in which you ſhall have diluted ſome ſoot.

LIX. *To ſoften iron, and harden it afterwards more than it was before.*

1. Make a little chink lengthways in an iron bar, in which you will pour melted lead. Then make it evaporate by a ſtrong fire, as that for copelling. Renew this operation four or five times, and the bar will become very ſoft. You harden it afterwards in ſteeping it, when red hot, in mere forge water; and it will be of ſo good a temper as to be fit for lancets, razors, and knives, with which you will be able to cut other iron without its ſplitting or denting.

2. It has been found by experience, that an armour can never be good proof againſt fire-arms, if it has not firſt been ſoftened with oils, gums, wax, and other incerative things, and afterwards hardened by ſteeping them ſeveral times over in binding waters.

LX. *To operate the tranſmutation of iron into damaſk-ſteel.*

You muſt firſt purge it of its uſual brittleneſs; and, after having reduced it into filings, make it red hot in a crucible: ſteep it ſeveral times in oil of olives, in which you ſhall have before thrown ſeveral times melted lead.

Take care to cover the veſſel in which the oil is contained, every time you throw your ſteel into it, for fear the oil ſhould catch fire.

LXI. *To guard iron againſt ruſting.*

Warm your iron till you can no more touch it without burning yourſelf. Then rub it with new and clean white wax. Put it again to the fire, till it has ſoaked in the wax. When done, rub it over with a piece of ſerge, and this iron will never ruſt.

LXII. *To cut pebbles with eaſe*

Boil it a good while in ſome mutton-ſuet; and, then, you will cut it very eaſily.

LXIII. *To whiten copper.*

Take auripigment and eggs' ſhells calcined, equal quantities. Put all together in a pot covered with another having a little hole on the top. Give it firſt the wheel-fire for three hours. Then increaſe the fire, and, what ſhall have been ſublimed remix with the *fæces* again. Sublime anew, and mix again the *fæces* and the flours together. Then, for the third time, there will be no more ſublimation; only the flours will ſwim over the *fæces*. Now take arſenic of one ſingle ſublimation, and crude tartar, of each equal parts well mixed together, and ſtratify with this mixed powder ſome very thin copper laminas. Then puſh the fire with violence to the degree of fuſion, and granulate it in water, which you are to put in great agitation for a good while before you throw the matter into it, in order to prevent thereby your matter from ſparkling when you throw it. In reiterating this operation on the ſame metal, you will render your copper as beautiful as ſilver.

LXIV. *A projection on copper.*

1. Take fine pewter two ounces, which you will melt in a crucible. When melted, throw in it by little at a time the ſame weight of flour of brimſtone. Stir every time with a rod, till you ſee both your pewter and ſulphur well calcined. Then take the crucible out of the fire, and throw in half an ounce of crude mercury. Let it cool and pulveriſe this.

2. Now melt four ounces of molten copper. When in good fuſion project on it, by degrees, one ounce of the above powder, ſtirring carefully, while you do it, with a ſtick. Leave it thus in fuſion for a little while, and then you may uſe it for making all ſorts of plates. It is ſo beautiful, that, if you teſt it on the coppel with lead, it will ſtand it perfectly.

LXV. *A receipt for the preparation of emery.*

1. Calcine eaſtern, or Spaniſh emery, three, or four, times in the fire; then let it cool. Pound it and make *ſtrata ſuper ſtrata* of it, with double the quantity of ſulphur-vivum in powder. Leave this crucible in the furnace with a ſtrong fire during three or four hours. Repeat this proceſs four different times over, then reduce your emery into an impalpable powder. Put it next into a matraſs, pour over it regal water, that it ſwim over by three fingers deep. Put this in digeſtion for eight hours. Pour off by inclination your regal water impregnated with the dye. Put new water on your matter, and ſet it on digeſting again for eight other hours, as the former. Then take your thus tinged waters, which you will mix and put in a retort. Diſtil moſt part of it, till you ſee that what remains in the retort is yellow. This is the true oil of emery, in which you will put the bigneſs of a filbert of camphire.

2. Exſulphurate in a crucible, on a good fire, and during two hours, what quantity you pleaſe of arſenic. Then take two ounces of the aforeſaid oil of emery, one of your exſulphurated arſenic, an equal quantity of ſalt of tartar drawn with diſtilled vinegar, two of ſublimate, and two of ſilver; which you will have diſſolved in an *aquafortis* made with nitre and vitriol. Put all together in a matraſs ſo large that the compoſition ſhould occupy no more than a third part of it, and of which you ſhall have cut the neck off, to obtain a more eaſy evaporation of the compounds from it. Put this matraſs in the ſand as high as the matter, and give it a moderate fire for two hours, then a ſtrong one for ſix, after which you will let the fire go out of itſelf. When done, you will find your matter in a ſtone in the matraſs. Take it out and pound it into powder. One ounce of this powder,

der, projected upon another ounce of ſalt in fuſion, if you keep it a little while in that ſtate, and throw it afterwards into oil of olives, will increaſe your gold by a third of its primary quantity and rather more: And you may thus increaſe it again and again by repeating the ſame operation.

LXVI. *A factitious* amiant; *or the way to make an incombuſtible cloth.*

Take rotten oak-wood which you will calcine into aſhes, and mix with an equal quantity of pearl-aſhes. Boil all together in ten times its weight of water. When this has boiled one hour, add as much water to it as there may have been evaporated, and boil now in it a large ſtick of *alumen plumoſum*, during one hour. Take off the veſſel from the fire, and carry it into the cellar. In a month's time you will find your alum as ſoft as flax. Spin it, and get it weaved into a cloth. The fire will never have any power over it. On the contrary, the beſt way to waſh it is to throw it on red hot coals; and, after having there let it burn throughout, take it off, and you will find it perfectly clean.

LXVII. *To render tartar fuſible and penetrating.*

1. Stratify cakes of white tartar with vine branches. When done ſet them on fire by the top, and when arrived at the bottom your tartar will be calcined.

2. Diſſolve this calcined tartar in *aquavitæ*, then paſs it through the filtring paper, and next evaporate the brandy. What ſhall remain is the ſalt of tartar, which you muſt find to be as white as ſnow. Pour over it the beſt and the trueſt French ſpirit of wine, ſo that it ſhould exceed over the ſalt the thickneſs of an inch. Set it on fire. As ſoon as your ſpirit of wine ſhall be all conſumed, your ſalt of tartar will be fuſible and penetrating.

3. Now ſhould you make any iron red hot, and project on it a little of that ſalt, it will penetrate it through and through, and leave after it a veſtige as white as ſilver in the place where it touched.

LXVIII. *To extract mercury from any metal.*

1. Diſſolve lead, antimony, or any other metal, in good common *aquafortis*. When that water ſhall have

diſſolved as much of it as it can, pour it out by inclination, and on what ſhall not yet be quite diſſolved, but corroded only in a white powder, pour ſome hot water. Shake then the matraſs in which the metal is, and you will find that the water will finiſh to diſſolve what the *aquafortis* could not. Next to this paſs it through a filtring paper; and, what you will find not able to paſs, diſſolve it now with ſome freſh *aquafortis*, or only water, if it ſo appear to you that this may do. Continue thus the ſame diſſoluting proceſs, till you have obtained a perfect diſſolution of all the powder, and you have made it paſs through the filtring paper. Now take all your ſeveral diſſolutions, both thoſe made with hot water and thoſe made with *aquafortis*, and mix them all together. Make a precipitation of that diſſolution to the bottom of the veſſel in form of white curds, by means of a water impregnated with ſalt. Edulcorate this twice, with cold common water, and once with ſome a little warm, then dry it.

2. Take one ounce of that diſſolution, thus edulcorated and exſiccated into powder; half an ounce of ammoniac ſalt ſublimed over common ſalt. Grind all together on a marble ſtone with a mullar for a long while, that it may be well incorporated, as the painters do their colours; and, to ſucceed better in that incorporation, impregnate it with diſtilled vinegar. Now put all this into a pan, and pour cold water over it, ſo that it ſhould ſwim over the matter, ſtir it well twice a day with a ſtick, for three whole weeks. Then take quick lime, which you will ſlack with the ſwimming liquor which covers your matter; and, with equal quantities of the powder which lies under it, and the ſlacked lime, make ſmall bullets, which you will put into a retort well luted, and puſh it on with a great fire. You will ſoon ſee the mercury going into the receiver, which you muſt have had the precaution of filling with water, and under which, at the bottom, you will find it.

3. The ſame proceſs carefully attended to, may procure you mercury from all the metals and minerals without exception.

LXIX. *To dye in gold ſilver medals, or laminas, through and through.*

1. This curious operation is performed by means of the admirable ſalt of *Glauber*, which is made with nitre and vitriol oil, in the following manner.——Take what quantity you pleaſe of nitre ſalt, pour over it a ſufficient quantity of oil of vitriol, to have it ſwim over. When the ebullitions ariſing from that mixture ſhall be ended, diſtil to dryneſs; there remains a white ſalt known under the name of ſalt of *Glauber*.

2. Diſſolve in what quantity of warm water you think proper, or be in need of, a ſufficient quantity of that ſalt as may ſaturate it, which you know when you ſee the water can diſſolve no more of it. In this diſſolution put a drachm of calx, or magiſter, of gold. Then put in digeſtion in it ſilver laminas cut ſmall and thin, and let them ſo for twenty-four hours over a very gentle fire. At the end of that term you will find them thoroughly dyed gold colour, inſide and outſide.

LXX. *To refine pewter.*

Take fine pewter, melt it in a crucible. When done, project over it at ſeveral times ſome nitre till you ſee it calcined. Then pound it into powder, and mix it with an equal quantity of charcoal pulveriſed very fine. If, in this condition, you melt it again, it will reſume its form of pewter, only refined in a much ſuperior degree.

LXXI. *To make a perpetual motion.*

Take *aquafortis*, in which you will throw ſome ſteel-filings well dried. Leave this mixture to lay for ſix or eight hours. Then pour out the *aquafortis* in another bottle, in which you will throw a ſmall loadſtone of good quality, and ſtop it well that no air get in. You will obſerve a perpetual motion.

LXXII. *A ſecret fire.*

Have a barrel open by one end, and pierced with a dozen of holes on the other. Put in it three or four buſhels of oat ſtraw cut very fine, as that which is given to horſes. Get next half a buſhel of barley, which ſhall have ſoaked for three days in lime water, and drained in a ſheercloth of all the water which can run out of it. place this wet barley in a lump over the oats' ſtraw, then cover it with other ſimilar cut ſtraw, and let it reſt till the time that, when you thruſt your hand in it, you feel it warm. This heat you may keep up by throwing, with a gardner's watering-pot, about half a pint of water every other day.

LXXIII. *An oil, one ounce of which will laſt longer than one pound of any other.*

Take freſh butter, quick lime, crude tartar, and common ſalt, of each equal parts, which you pound and mix well all together. Saturate it with good brandy, and diſtil it in a retort over a graduated fire, after having adapted the receiver, and luted well the joints.

LXXIV. *To make a coppel with aſhes.*

Take equal parts of the aſhes reſulting from vine-branches, mutton-bones, and harts' horns burnt and calcined. Moiſten them with a little common water, then preſs them very hard in a mould called *Coppel.* Then take aſhes from the jaws and teeth of a jack, which you put over the other aſhes to the thickneſs of a crown piece, pounding well theſe alſo over the others as hard as you can. Theſe laſt aſhes ſerve to ſet off clean the grain of the metals you are teſting on them. The harts-horn aſhes ſerve to bind, or unite, thoſe of vine-branches and mutton-bones together, and to draw down at the ſame time the lead. You muſt uſe eight times as much lead as the compoſition, you want to teſt by the *coppel,* weighs.

LXXV. *To ſolder iron, or any other metal, without fire.*

1. Take one ounce of ammoniac, and one of common, ſalts; an equal quantity of calcined tartar, and as much of bell-metal, with three ounces of antimony. Pound well all together and ſift it. Put this into a piece of linen, and incloſe it well all round with fullers' earth, about one inch thick. Let it dry, then put it between two crucibles over a ſlow fire to get heat by degrees. Puſh on the fire till the lump contained in the crucibles become quite red hot, and melt all together. Then let the veſſels, and the whole, cool gradually and pound it into powder.

2. When you want to ſolder any thing, put the two pieces you want to join on a table, approaching their extremities as near as you can one to another. Make a cruſt of fullers' earth ſo, that holding to each piece, and paſſing under the joint, it ſhould be open over it on the top. Then throw ſome of your powder between and over the joint. Have again ſome borax, which put into hot wine till this is conſumed, and with a feather rub your powder at the place of the joint; you will ſee it immediately boiling. As ſoon as the boiling ſtops, the conſolidation is made. If there be any roughneſs you muſt ſmoothen it by rubbing with a grinding-ſtone, for the file will have no power over it.

LXXVI. *To ſolder with fire.*

Make a paſte with pulveriſed chalk and gum-water, which you will put round the two broken pieces placed on a table, and prepared as before mentioned in the preceding receipt. The only difference is, that you are to rub over the two united extremities with melted ſoap; and, after having thrown ſome of the above powder at the place of the joint, you are to hold a kindled piece of charcoal over it. This will immediately ſet the matter in fuſion, which is no ſooner done but you may take off the paſte, and you will find it conſolidated.

LXXVII. *To make Borax.*

Take two ounces of rock-alum; dilute it and mix it with two ounces of alkaline ſalt which is uſed in making of glaſs. Put all into a pewter pot, and ſet it a-doing, for the ſpace of half an hour, over a gentle fire; then take it out of the water. Take next two ounces of gem ſalt in powder, as much of alkaline ſalt, two pounds of virgin honey, and one of cow-milk. Mix well all together, and ſet it in the ſun for three days. Then the *borax* is done.

LXXVIII. *To render iron as white, and beautiful, as ſilver.*

Take ammoniac ſalt in powder, and mix it with an equal quantity of quick lime. Put then all together into cold water, and mix well. When done, any iron piece, which you ſhall have made red hot, will, if you ſteep it in that prepared water, become as white as ſilver.

LXXIX. *To calcine pewter, and render it as white, and as hard, as ſilver.*

Melt well your pewter in a crucible, ſo that it may be very fine and clear. Pour it aſterwards into a very ſtrong vinegar, then into mercurial water. Repeat that operation as many times as you pleaſe, you will each time give it an additional degree of hardneſs and whiteneſs, drawing near to ſilver; ſo much that it will, at laſt, be very difficult to diſtinguiſh it from ſilver itſelf.

LXXX. *Another to the ſame purpoſe.*

Make again a good lye with vine-branch aſhes and vinegar. Throw in it your pewter when in fuſion. Repeat this, ſeven different times.—Have next ſome new goat's milk in which you ſhall have added ſome white arſenic in powder. Melt your pewter again; then throw it in this preparation. Repeat twelve times the ſame; and the pewter will become as hard and as white as ſilver.

LXXXI. *To whiten braſs.*

1. Take roſin and ſaltpetre, equal quantities. Pound all in a mortar, and reduce it into an impalpable powder. Put this into an earthen pan made red hot, and thus burn the matter. As ſoon as done, you muſt waſh, and dry it; then grind it again well into an impalpable powder as before, with the addition of an equal quantity of auripigment. Then put all this into a crucible, cover it with another well luted and having a little hole in the top, which you will ſtop by laying only a medal on it. When calcined take what you will find clear in the bottom, not what will have ſublimed on the top. Make a very fine powder of this matter; and, with *one* ſingle ounce of that powder, you will be able to whiten two pounds of braſs, in proceeding about it as follows.

2. Melt firſt your braſs as uſual; and, when in good fuſion caſt it into very good vinegar; an operation which you muſt repeat three times. Then, when you melt it for the fourth time, you are to project on it, as we ſaid before, *one* ounce only (if you have two pounds of braſs) of the ſaid powder, which will render your braſs as white as ſilver.—*N. B.* To melt the braſs with more facility there are ſome who throw in the crucible a certain diſcretionable quantity of mice-dung; and I recommend

to do the ſame. It will be found of no ſmall ſervice; in haſtening the fuſion of that metal.

LXXXII. *An other method.*

Braſs, copper, iron or ſteel may alſo be eaſily whitened by means of the butter from Cornwall tin, or pewter, prepared with ſublimate, proceeding as follows.

Take Cornwall pewter, about one pound; add to it half that quantity of ſublimate. Set it on a ſtrong fire, and ſublime. The firſt water which ſublimes is not good, throw it away. The ſecond is good, which you know by its white colour. Now, if you make a piece of copper, braſs, ſteel, or iron, it does not ſignify which, red hot, and ſteep it in that water, it will become as white as ſilver.

LXXXIII. *To extract gold from ſilver.*

1. Melt, whatever quantity you pleaſe, of lead, in a crucible, over a fire of clear and bright live-coals. Have at the ſame time in fuſion an equal quantity of ſulphur. Then take your firſt crucible, in which the lead is melted, off from the fire; and, before the lead ſhall congeal, throw in the ſame quantity in weight of quickſilver. Stir and mix well this with a ſtick. When this is done, pour now your ſulphur, from the other crucible, over the mixture of lead and quickſilver you have juſt made, & which coagulates, continually ſtirring carefully the matter with a ſpatula, for fear the ſulphur ſhould blaze and be conſumed before it is all poured in. When the whole is come quite cold, grind it on a marble table with a mullar. Then put all again into a crucible over the fire, and leave it in fuſion till all the ſulphur is burnt out, and the matter be fluid enough to be caſt in an ingot. This will look like the regulus of melted antimony. It will have even its brittleneſs.

2. Reduce now this compoſition into powder; and, with an equal quantity in weight of it and of ſilver laminas, make *ſtrata ſuper ſtrata* of them, alternately, in a crucible beginning and ending always with the powder. Then, over the laſt bed, put about half an inch thick of Venetian glaſs, or cryſtal, reduced into an impalpable powder. Obſerve however that the crucible ſhould not be filled ſo near the brim as to let the glaſs boil over.

Make a fire ſtrong enough to melt both the matters and the glaſs, and ſet them thus in fuſion all together for a good hour at leaſt. Then take off, and let cool, your regulus, in breaking your crucible, make a coppel, or teſt, in which you will put lead in fuſion, till it is as fluid as it can be. Throw in your regulus to purify it by that teſt in the ſame manner as ſilver-ſmiths do.—When your ſilver ſhall be fallen to the bottom very pure, put it in laminas, or granulate it; then put it to diſſolve in *aquafortis*. You will ſee ſome ſmall particles precipitating from it, in the form of black powder. It is fine gold. Waſh theſe in warm water; then put them in fuſion, in a crucible, and you will have very true, and good pieces of gold, fit for any of the chymical phyſics, and capable to ſtand any teſt whatever you may put it to.

CHAP. III.

SECRETS for the compoſition of VARNISHES, &c.

I. *A gold varniſh.*

TAKE *karabe*, or amber, eight ounces, and two of gum-lac. Melt firſt the karabe, in a varniſhed earthen pot, or in the retort of an alembic, over a very ſtrong fire. When this is melted, throw in the gum-lac, and let this melt in the ſame manner. Then take ſome of the fire off, and let it cool; obſerving with a ſtick, whether the matter has got all its fluidity. Mix in it ſix, or eight, ounces of turpentine oil. Keep ſtirring, with a ſtick, in order to incorporate well this oil with the reſt. Add alſo a ſpoonful of lintſeed oil, prepared with *hepatica*-aloes, to the conſiſtence of a balm: which, in order to thin, and reduce it to the thickneſs of a ſyrup, you mix with a ſufficient quantity of oil of turpentine, tinged with *rocou*.

II. *How to prepare the lintſeed oil with the* hepatica-*aloes, for the above purpoſe.*

You prepare the lintſeed oil with *hepatica*-aloes, by mixing ſour ounces of this in powder, with one pound of the ſaid oil, which you do over the fire, till it has acquired the conſiſtence of a very thick ſyrup, and you ſee your oil beginning to ſcum, and to ſwell much.—Then paſs it through a piece of linen, let it cool, and bottle it, to keep for the above-mentioned uſe.

III. *How to draw the tincture of* rocou *uſed in the compoſition of the above varniſh.*

In order to draw the tincture of *rocou*, put four ounces of it in oil of turpentine. Set this over a gentle fire, in the retort of an alembic; and, as ſoon as the oil begins to boil, take it off from the fire: ſtir well with a ſtick, and filter it through a paper, to uſe it as directed before.

IV. *A varniſh for iceing.*

Concoct ſome turpentine with water, and white wine of brandy. When concocted, diſſolve it in wine and oil of turpentine.

V. *An excellent varniſh.*

Take what quantity you pleaſe of verdigriſe, grind it with vinegar, put it in a piece of dough, as you would an apple to make a dumpling. Bake it in an oven as bread; then cut open your dumpling, and get the verdigriſe out of it. Mix it with wine, and uſe it. Lay over it a coat of four ounces of gum arabic; then poliſh as uſual. You will find it will anſwer your expectation, and be a very fine varniſh.

VI. *Another, as good.*

Put, in a glaſs bottle, one pound of white maſtich. Pour over what quantity of oil may be requiſite to cover all the maſtich. Place the bottle over the coals, or very-hot aſhes. The maſtich will melt. Take the bottle off from the fire, and ſhake it well, to ſee that the whole be perfectly diſſolved. This varniſh is exceſſively good to lay over prints, ſtatues, columns, wood, &c.

VII. *A red varniſh.*

1. Take three ounces of gum-lac; half an ounce of ſandarak; as much of maſtich in drop, and a pint of true French ſpirit of wine. Put all in a matraſs, which you muſt take care to lute well with potter's clay, and ſtop with paper. Have a large iron kettle, two parts of which ſhall be filled with ſand. Place the kettle over

the coals, and lay the matraſs on the ſand. Get the compoſition to boil in that ſituation for three hours. Strain it through a ſheercloth; bottle and ſtop it well, and keep it for uſe.

2. To make this varniſh red, you put one ounce of vermilion to ſix of the ſaid varniſh. But to dilute the vermilion you muſt begin by pouring, firſt, ſome oil of aſpic over it, and then the ſix ounces of varniſh, which will take near a quarter of an hour to mix well together.

3. Obſerve that the wood, on which you want to lay it, has been firſt well poliſhed. Rub it again, beſides, with a pounce ſtone and vinegar, that all the pores may be well filled, and ſhould appear no more. Then lay, with a bruſh, firſt a coat of ſimple varniſh, without vermilion. Let this dry for three hours. Put on next your ſecond coat, of that which is prepared with the vermilion; then a third and a fourth, according as you want it of a more, or leſs, deep red, and allowing a diſtance of three hours time between each coat of varniſh, to let them dry.

4 If the laſt coat of varniſh, after being dry, become rough, rub it with ſhavegraſs dipped in oil of olive. After which rub it again with a cloth, till it become bright. Over this, when done, lay another coat of *pure* varniſh, like the firſt. And this coat, as well as all the others, muſt be left to dry, at leaſt three hours.

5. As for the black and venturine, you muſt firſt lay a coat of varniſh on the wood; then, while freſh, ſieve the venturine over it, and let all dry for three hours. When dry, you lay one, two, three, or more, coats, of varniſh, according to your judgement or liking, and allowing always three hours to dry between each coat. Then poliſh, and give the final coat after.

VIII. *A black varniſh.*

1. Take gum-lac, four ounces: ſandarak and black roſin, equal quantities, one ounce of each. Pulveriſe all ſeparately, and keep them diſtinct, to proceed afterwards in their mixture according to the following directions. Diſſolve the roſin over the fire in a ſufficient quantity of ſpirit of wine; then add the ſandarak to it. As ſoon as this is alſo diſſolved, add the powder of gum-lac, and ſtir

well till all is well melted together. Strain it, while warm, through a cloth. If any thing remain in the linen afterwards, add ſome more ſpirit of wine to it to diſſolve it as before ; and ſtrain it again after like the other. Such is the firſt preparation of this varniſh.

2. The black colour is given to it by means of *two drachms* only of ivory black to every *two ounces* of it.

IX. *How to make a good ivory-black for the above purpoſe.*

Burn any quantity of ivory you pleaſe, in the fire, till it is black. Put it into powder on a ſtone of porphyry. Add ſome water to it, and make a paſte, which you let dry. Then grind it again, as before, with ſpirit of wine.

X. *A varniſh for floors.*

Put a little petroly or rock-oil with varniſh and turpentine, and ſtir well. Lay it on your floors with an old hair broom, after having mixed in it the colour you want them to be.

XI. *A varniſh, from Flanders.*

Take æthereal oil of turpentine, and Venice turpentine, equal parts. Mix them over a moderate fire, and uſe this boiling.

XII. *A varniſh to lay on canvas ſaſhes.*

Take fine and clear turpentine, four ounces ; oil of nuts, two. Melt all together over a fire ; and when it begins to boil, ſcum it, and uſe it hot with a bruſh.

XIII. *A varniſh of ſhell-lac, for miniatures and other pictures.*

1. Take ſpirit of wine, one pound ; picked ſhell-lac, five ounces ; ſandarak, two and a half ; white karabe and maſtich, equal parts, two drachms of each.

2. Firſt boil and ſkim the ſhell-lac and ſandarak together, to have them the whiter. Then add the maſtich and karabe to that, and put all in a matraſs over a ſand fire, to digeſt and concoct together by a gentle heat.

XIV. *Another varniſh for pictures.*

Take four ounces of gum arabic, the cleareſt and whiteſt you can find. Put it to infuſe in a pound of water, over ember aſhes, for one night. Strain it in the morning through a cloth, after having added to it the bulk of a nut of Narbonne-honey, and half that quantity of ſugar candy. It is not to be uſed with a bruſh.

XV. *Another ſort.*

Take *aquavitæ*, ſugar-candy, and whites of eggs, a reaſonable quantity of each. Beat all well together to a froth. Underneath is a liquor: that is your varniſh. You may lay it, with a ſoft bruſh, on any ſort of picture.

XVI. *The Chineſe varniſh.*

1. Take pulveriſed and ſifted ſealing wax, two ounces. Put it in a matraſs with four ounces of turpentine oil. Give a gentle fire, that all may melt. If the wax be red, you need add nothing but the oil. If black, ſome lamp-black is requiſite to be added ſtill. And, with this firſt compoſition, you lay on the firſt coat.

2. Next to this have aloes and karabe, of each two ounces. Diſſolve this in a varniſhed pipkin, along with twelve ounces of lintſeed oil, till all is well incorporated. There will fall a ground to the bottom, over which will ſwim a very fine and tranſparent liquor. Of this you are to make your ſecond coat of varniſh, laying it over the other after it is dry.

XVII. *How to imitate a black jaſper, or variegated black marble.*

Take *ſulphur-vivum*, quick lime, *aquafortis*, and the green rind of walnuts, equal quantities, one ounce of each. Dilute all together; then lay it with a bruſh on what you want to be jaſpered, whether a column, a table, or any thing elſe. This done, put your table or column, &c. thus blackened, in a dunghill, for the ſpace of twelve days, and then take it out again. You will find it well veined and variegated. To give it a fine gloſs afterwards, you rub it with a varniſh compoſed as preſcribed hereafter. *See* Art. xix.

XVIII. *Another way.*

Make a large ball, with the drugs preſcribed in the above receipt, to compoſe your black. Lay it for a week in a dunghill. When, by that means, it is well variegated, rub your intended piece of furniture with it. This being thus variegated, you lay on it the following varniſh, to give it a fine luſtre.

XIX. *An*

XIX. *An excellent varniſh to give a fine gloſs to the above-mentioned jaſper, or variegated black marble.*

Take oil of ſpikenard, three ounces; ſandarak, well picked and clean, two. Have a new earthen pot well glazed. Set it before the fire, a-warming, without any thing in it. When hot, throw in it one half of the ſandarak, and one half of the oil. Stir well, leſt it ſhould burn, or ſtick to the pot. When it is nearly melted, throw in the remainder of the oil and ſandarak. When all is well diſſolved and mixed, add a piece of camphire, to take away the bad ſmell of this compoſition, and let it diſſolve; then bottle and ſtop it for uſe. Warm it every time before you lay it on, for it requires to be uſed hot.

XX. *A varniſh which dries in two hours time.*

Melt four ounces of yellow amber, in a new earthen pan, over kindled coals. Take care, in that operation, that the fire ſhould but juſt reach, and touch, the bottom of the pan, and none ſhould riſe along the ſides. Never ceaſe to ſtir, from the moment it is melted, with a deal ſtick, and add, directly, one ounce of ſealing-wax. As ſoon as this is alſo melted, add again one ſpoonful, or half an ounce, of lintſeed oil, previouſly thickened with a little gold litherage; then take it off from the fire, and ceaſe not to ſtir as before. When the matter begins to be a little cold, then is the time of adding what quantity of turpentine oil you may find neceſſary to make a true varniſh of it.

XXI. *A varniſh for copperplate prints.*

Prepare water with ſome iſinglaſs. Lay, with a very ſoft bruſh, a coat of this on the print. Next to this, lay another of the following varniſh.—True French ſpirit of wine, half-a-pound; gum-elemi, two drachms; and ſandarak, three.

XXII. *An admirable varniſh.*

Take white maſtich and lintſeed oils, what quantity you pleaſe; a little turpentine, pounded glaſs, burnt verdigriſe, and pounded amber. Boil, and melt, all together in a new earthen pot. When done, you will find it to be an admirable ſort of varniſh.

XXIII. *A varniſh fit to lay on all ſorts of colours.*

Take one ounce of white amber; half an ounce of ſpirit of turpentine; four ounces of rectified ſpirit of wine (the true French ſort); one drachm of maſtich, and as much of juniper gum. Put all together to infuſe for eight days. Evaporate two parts of it over a gentle fire. What remains is a varniſh fit for laying on all ſorts of colours, and which will hurt, ſpoil, or damage none.

XXIV. *A varniſh known under the appellation of* Beaume-blanc, *or, white-balm.*

Take ſpirit of wine, four ounces; gum-lac, half an ounce; ſandarak, two drachms; maſtich, one. Pulveriſe the ingredients, and put them, with the ſpirit of wine, in a ſquare bottle large enough to be but half full after the whole is in it. Diſſolve this over a ſlow fire, and take care the bottle ſhould be well ſtopped firſt with a cork, and beſides with wax and leather.

XXV. *A varniſh to be uſed on plaiſter, and any other ſort of materials.*

To the varniſh of copal and ſpirit of wine, only add ſome calcined talk.

XXVI. *An excellent varniſh, in which may be put, and diluted, whatever colour you like.—It ſuits, equally well, goldſmiths and limners.*

Take aſpic and turpentine oils, of each one ounce; clean picked ſandarak pulveriſed, four drachms; gum copal, two. The whole being well pulveriſed, put it along with your oils in a matraſs, with the addition of half a pound of ſpirit of wine; and ſet it in a *balneo mariæ*. When the matter is diſſolved, ſtrain and keep it for uſe, in a glaſs bottle well ſtopped.

XXVII. *A Chineſe varniſh ſuitable to all ſorts of colours.*

1. Take one ounce of white amber; one quarter of an ounce of ſandarak; as much of gum copal. Pound well all theſe together, and put them in a matraſs perfectly dry. To every ounce of theſe three drugs, pounded and mixed thus together, put three ounces of ſpirit of wine. Stop well the matraſs with a rag, over which you will put ſome paſte made with flour, and then another rag, well tied over. Boil the varniſh thus, over ember aſhes, till the whole is diſſolved, and this varniſh is done. The method of applying it is as follows.

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XIX. *An excellent varniſh to give a fine gloſs to the above-mentioned jaſper, or variegated black marble.*

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XXI. *A varniſh for copperplate prints.*

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2. The piece intended for varniſhing being previouſly well poliſhed, you lay on it the propoſed colour or colours, diluted in *aquavitæ* with ſome iſinglaſs. When theſe are dry, paſs on them two or three coats of this varniſh, according to diſcretion and taſte; allowing the proper time between each coat of varniſh to dry; and, when dry, you poliſh it with olive oil and tripoly, then rub the oil off with a rag.

Note. That if you intend this varniſh for miniature pictures, you are to make an addition of equal parts of gum copal and white amber.

XXVIII. *Another Chineſe varniſh, more particularly calculated for miniature painting.*

Take one ounce of white *karabe*, or amber; and one drachm of camphire, which you reduce into a ſubtile powder, and put in a matraſs, with five ounces of ſpirit of wine. Set it in the ſun to infuſe, during the hotteſt days in July and Auguſt, and ſtir it two or three times a-day conſtantly. After a fortnight's infuſing thus, put the matraſs, for one hour only, over hot aſhes; then paſs all through a cloth, and keep it in a bottle well corked.

XXIX. *How to make a red, with varniſh, of a much higher hue than coral itſelf.*

Take Spaniſh vermilion, grind it on a marble with brandy, and add to it the ſixth, or eighth, part of lac.—When done, mix this compoſition with as much varniſh as you may find it requiſite to apply.

XXX. *To make it gridelin colour.*

Dilute with your varniſh ſome blue verditure, lake, and whitening.

XXXI. *To make it green.*

Subſtitute for the above ingredients, German green verditure, pewter in grain, and white lead.

XXXII. *Another way for the ſame.*

Grind, with water, on a marble ſtone, the fineſt orpine you can find, and a little indigo. Let it dry, then pound and mix it with varniſh.

XXXIII. *To make it yellow.*

Take ſome Naples yellow, and mix it well with your varniſh; then uſe it.

XXXIV. *To make it blue.*

Take ultramarine, lake, and whitening, and proceed as ordered in the other receipts above mentioned, and according to the directions of your judgment, and experience from them.

XXXV. *Another ſort of varniſh.*

Take ſhell-lac, in grains, two ounces; two of ſandarak; black roſin, two drachms; and, ſpirit of wine, one quarter. Diſſolve and prepare the whole as above.

XXXVI. *A clear and tranſparent varniſh fit for all ſorts of colours.*

Take oil of nuts, and a little of the fineſt Venice turpentine. Boil them well together. Add a little brandy to it, and boil it well alſo. Should then the varniſh prove too thick, thin it with an additional quantity of oil. And, to apply it, make uſe of a very ſoft hair bruſh, and lay it carefully over the colours.

XXXVII. *To make ſaſhes with cloth, which will be very tranſparent.*

Take a fine white cloth; the finer you chuſe it, the clearer and more tranſparent the ſaſhes will be. Fix the cloth very tight on a frame. Then make ſome ſtarch with flour of rice, and lay a coat of it, as ſmooth as you can, on your cloth, with a ſtiff bruſh of ſwine's hair. Lay that ſtarch on both ſides of the cloth, and let it dry. When it is perfectly dry, paſs, on both ſides alſo, of the ſaid cloth, thus prepared, the following varniſh, with a ſoft bruſh of ſwine's hair likewiſe, having care to lay it on as equally and ſmoothly as poſſible, and let it dry afterwards.

XXXVIII. *The compoſition of varniſh fit for the above ſaſhes.*

1. Take of the fineſt and whiteſt wax you can find, ſix pounds; of the fineſt and cleareſt Venice turpentine, two; one and a half of the moſt perfect lintſeed oil. Have a new and varniſhed pipkin, larger, at leaſt by one third, than is requiſite to contain all theſe ingredients. Put, firſt, in this pot the lintſeed and turpentine oils together, and ſet it over a ſmall charcoal-fire. When this begins to be a little warm put in the wax, cut in ſmall

bits, and take care to mix all well with a very clean wooden ſtick, till the wax, being thoroughly melted, is alſo well incorporated with the reſt.

2. Now, take the pot off from the fire; and, while this compoſition is ſtill a little warm, give a coat of it on both ſides of the cloth, fixed on the frames, and prepared as before directed, and let it dry in the ſhade.

Note. You may render your ſaſhes ſtill more tranſparent, if, on both ſides of them, you lay a ſmooth and equal coat of the following varniſh, with a ſoft bruſh; then let it dry.

XXXIX. *A fine white varniſh.*

Take one pound of fine Venice turpentine, and as much of ſpirit of turpentine. Put this in a glaſs-matraſs, larger, at leaſt by a third, than is wanted to contain the matter. Stop this matraſs with another ſmaller matraſs, the neck of which is to enter into that of the former. Have care to lute well both necks together with paſte and paper; and, when the luting has acquired a perfect dryneſs, ſet the firſt matraſs on a ſand bath, then ſet the varniſh a-boiling, for near an hour, after which take it off from the fire, and let it cool. When cold, bottle and ſtop it for uſe.

Note. Turpentine, well purified from all its greaſy parts, is the beſt, and fitteſt, to make the varniſh for ſaſhes.

XL. *A curious and eaſy varniſh, to engrave with* aquafortis.

Lay, on a copperplate, as ſmooth and equal a coat as you can, of lintſeed oil. Set the plate on a chaffing-diſh, in which there is a gentle heat of half conſumed charcoal, that the oil may congeal and dry itſelf gently on. When you find it has acquired the conſiſtence of a varniſh, then you may draw with a ſteel point in order to etch your copper, and put on the *aquafortis* afterwards.

XLI. *A varniſh to prevent the rays of the ſun from paſſing throug hthe panes of window-glaſſes.*

Pound gum adragant into powder; and put it to diſſolve, for twenty-four hours, in whites of eggs well beaten. Lay a coat of this on the panes of your windows, with a ſoft bruſh, and let it dry.

XLII. *To raiſe a relief on varniſh.*

1. Diſſolve one ounce and a half of gum arabic in two pounds of water. Grind with it bol Armeniac, and whitening on a porphyry ſtone, till all is well united and incorporated. With this compoſition, fill up the vacancies between the outlines of your deſign, and form, as it is proper, the various reliefs, with the ſuitable proportions, and according to the ſorts of things you are to imitate or repreſent. Then ſmooth the parts, and let it dry.

2. Next have ready prepared, in ſhells, the different ſorts of metals which you want to uſe, diluted with gum-water; and, with a pencil, cover what places you are to cover. When this is alſo dry, burniſh it ſkilfully with an ivory tooth, and lay a coat of clear varniſh over the whole. A moderate heat is required for a moment to help that varniſh to dry.

XLIII. *To render ſilk ſtuffs tranſparent, after the Chineſe manner; and paint them with tranſparent colours likewiſe, in imitation of the India manufactured ſilks.*

Take two pounds of oil of turpentine, very clear; add to it two ounces of maſtich in grain, and the bulk of a filbert of camphire. Let this diſſolve by a gentle heat; then ſtrain it through a cloth. Of this oil lay one coat, or two, on both ſides of your ſtuff. Allow, however, a ſufficient time, between each coat, for each to dry, and let the ſecond lie two days on, before you touch the ſtuff again. When that time is over, draw the outlines of your deſign, and flowers, &c.; cover this with a preparation of lamp-black and gum-water. Then fill the intervals with the intended and proper colours, ſuitable to the purpoſe, and which ought to be all tranſparent colours, diluted with a clear varniſh. When this is done, and dry, lay on both the right and wrong ſides of the ſtuff another coat of clear varniſh.

XLIV. *To make a tranſparent blue hue, for the above purpoſe.*

Take nine drachms of ammoniac ſalt; ſix of verdigriſe, diſtilled and exſiccated. Put both theſe into powder. Dilute theſe powders with tortoiſe oil. Put this on a very thick glaſs, which you ſtop well, and ſet over hot aſhes for a week. After that time your colour will be fit for uſe, and make your drawings with the clear varniſh, as directed in the preceding article.

XLV. *To make a tranſparent yellow hue, for the ſame uſe.*

Take a new-laid egg of that very day, make a hole in the ſhell, to draw the white out of it. Replace, by the ſame hole, with the yolk, two drachms of quick ſilver, and as much of ammoniac ſalt; then ſtop the hole with wax. Set that egg in hot dung, or over a lamp fire, for four or five and twenty days. When that time is over, break the egg, and you will find a very fine tranſparent yellow, fit for the uſe above mentioned.

XLVI. *To make a tranſparent green.*

Take verdigriſe, gold litharge, and quickſilver, equal parts. Grind the whole in a mortar, with the urine of a child. Put it next into a bottle, and ſet it over a gentle and ſlow fire, for the ſpace of ſeven, or eight, days. This compoſition will give a very fine tranſparent green, for the above purpoſe.

Note. We have given, in the Sixth Chapter, ſeveral receipts for the compoſition of ſundry tranſparent colours. We ſhall therefore take the liberty thither to refer the reader, for more ample ſatisfaction, and the completion of the above mentioned operation.

XLVII. *To give the abovementioned painted ſilks, all the ſmell, and fragrancy, of the India ones.*

It is well known, that the ſilks, and other things, we receive from India, are all tainted with a certain particular ſmell, and agreeable fragrancy, which, being their peculiar, diſtinctive, and moſt obvious character, if not imitated alſo, would help not a little in ruining the deception intended by the above labor. To imitate, therefore, even this, you muſt obſerve the following direction.—Have a ſmall cloſet, if it be for works at large; or, only a fine baſket with a top to it playing upon hinges, ſtuffed and lined all over in the inſide, if it be for one ſingle piece of ſilk. Put, in either of them, and according to their extent, a proportionable quantity of cloves, whole-pepper, mace, nutmeg, all-ſpice, camphire *etc. etc.* Put your works among theſe ingredients, and keep either the cloſet, or the baſket, perfectly cloſe ſhut, till you ſee they have received a full impreſſion from the odour of thoſe ingredients.

N. B. With the various compoſitions of varniſhes, and preparations of colours, we have juſt given, there is almoſt no ſort of works, coming from the Indies, but can be performed and imitated.

XLVIII. *A moſt beautiful Chineſe varniſh.*

Take one ounce of the whiteſt karabe (amber); or, inſtead of this, the ſame quantity of the whiteſt gum copal: four drachms of ſandarac; two, of fine maſtich, in drops. Put all this, reduced into a powder, in a fine glaſs matraſs; then, pour over it one ounce of the fineſt turpentine oil. Stop the matraſs firſt with a cork, then with a bladder wetted. Set this to infuſe, over a ſlow fire, for twelve hours. After this, uncork, and let cool, the matraſs; then pour, gently, in it ſix ounces of good ſpirit of wine, and ſtop it again as well as before. In that ſituation, ſet it on ember aſhes, or, rather, in a *balneo mariæ*. In the ſpace of another twelve hours, you will find that the ſpirit of wine ſhall have diſſolved all the gums. Then, while the varniſh is ſtill quite warm, ſtrain it through a cloth; bottle and cork it, to keep for uſe.

XLIX. *The true receipt of the Engliſh varniſh, ſuch as in that country is laid on ſticks and artificial-made canes.*

Smoothen and poliſh well your ſticks; then, rub them, or your artificial made canes, with a paſte made of flour. Then, having diluted, in water, a diſcretionable quantity of Flemiſh glue, and red orpine, give one coat of this, very ſmooth and equal, to your ſticks. If, after this is dry, you do not think it ſufficient, give them another, and let them dry. Then, give them a third coat, of clear varniſh, made with turpentine and ſpirit of wine. After this is done, put a ſoaking, in an equal quantity of water and chamber-lye, ſome turnſol cut very ſmall. With this colour you touch your ſticks, or canes, here and there with a hair bruſh. Then, holding them perpendicular, on their ſmall ends, between both your hands, you roll them quick and briſk, (as when you mill chocolate), in contrary ſenſes. This operation gives them a negligent and natural-like marbling,

bling, over which you are to lay another coat of varniſh, and ſet them to dry.

L. *A fine varniſh for all ſorts of colours.*

1. Take two pounds of double-rectified ſpirit of wine; ſeed-lac, four ounces; ſandarac, as much; gum copal, one. Set all a-diſſolving, on hot aſhes, in a matraſs, or a veſſel with a long neck. When perfectly diſſolved, ſtrain it through a jelly-bag, made of new cloth. Mix, with that which ſhall have ſtrained out of the bag, one ſpoonful of oil of turpentine; then bottle and ſtop it well, and ſet it in the ſun. There will happen a ſeparation, and a certain coarſer part will ſhew itſelf at the bottom, while another more clear will appear ſwimming on the top. Divide carefully, by inclination, the cleareſt from the thickeſt part.

2. This laſt you may uſe with fine lamp-black, well picked, and free from all ſorts of hard nobs, to make a black-colour varniſh. With it, you rub whatever you want to be varniſhed, and lay, one, two, or three coats of it, more or leſs, according as you think proper, letting dry between each coat. And, when this is done, you put, of the firſt ſeparated clear part of your varniſh, as much as you find requiſite to give your work a fine luſtre.

N. B. It is proper there ſhould be ſome fire, ſo near to the work, as it may receive from it ſome gentle heat, while all this is performing: and when the whole is well executed, you muſt let dry in the ſhade what is varniſhed, and guard it againſt the duſt.

3. If, inſtead of black, you want a red colour, you muſt, from the very beginning of the operation, join ſome tacamahaca-gum with the ſpirit of wine of double rectification above mentioned; and, in lieu of lamp-black, in the ſecond part of the operation, you put ſome cinnabar in powder. Then, when you have done with laying the ſeveral coats of varniſh, in which the cinnabar is, you put in the clear varniſh, which is deſtined to make the laſt coats, for luſtring, ſome dragon's blood in tears.

4. You may put, in the ſame manner, whitening in your varniſh, if you want it white; or verdigriſe if you

want it green; and ſo on any other colour you want it to be, proceeding, in reſpect to each of them, as before directed for the others.

N. B. Theſe varniſhes, when dry, do all require to be poliſhed. For that purpoſe, you take a cloth, dip it in tripoly, and rub, with moderation, over the laſt coat of varniſh, till you find it has acquired a ſufficient degree of luſtre, and equality.

LI. *A varniſh to lay on, after the iſinglaſs.*

Take ſpirit of wine, four pounds; white amber, fourteen ounces; maſtich, one; ſandarac, ſeven. Put all in digeſtion, for twenty-four hours. Then, ſet the matraſs on the ſand, and give the fire for three hours, till all is perfectly diſſolved. Add after, four ounces of turpentine oil.

LII. *A varniſh to gild with, without gold.*

Take half a pint of ſpirit of wine, in which you diſſolve one drachm of ſaffron, and half a drachm of dragon's blood, both previouſly well pulveriſed together. Add this to a certain quantity of ſhell-lac varniſh, and ſet it on the fire with two drachms of *ſoccotrine*-aloes.

LIII. *A varniſh water-proof.*

1. Take lintſeed-oil, the pureſt you can find; put it in a well-glazed pipkin, over red hot charcoals, in a chaffingdiſh. With that oil add, while a-warming, about the fourth part of its weight of roſin. Make all diſſolve together, and boil gently, leſt it ſhould run over the pot. At firſt, the oil will turn all into a ſcum; but, continuing to let it boil, that ſcum will inſenſibly waſte itſelf, and diſappear at laſt. Keep up the fire till, taking a little of that oil, with a ſtick, you ſee it draw to a thread like as varniſh does. Then, take it off from the fire. But if, trying it thus, it prove too thin, add ſome more roſin to it, and continue to boil it.

2. When it is come as it ought to be, varniſh whatever you want with it, and ſet it in the ſun to dry, or before the fire, for it cannot dry without the aſſiſtance of either of theſe.

N. B. This compoſition of varniſh has this particular property, *viz.* that, if you lay it on wooden wares, hot water itſelf cannot hurt it, nor have the leaſt power on it. You may, therefore, make a very extenſive uſe of it. But you muſt take care to chuſe the fineſt and the moſt perfect roſin; and to boil it well, for a long time. Quære. *Would not ſuch a varniſh be extremely uſeful, to preſerve what is much expoſed to the injuries of the weather, in gardens and elſewhere; ſuch as ſaſhes, ſtatues, frames, hot-houſes? etc.*

LIV. Callot's *varniſh, mentioned in Chap.* I. *p.* 2.

1. Take two ounces of the fineſt lintſeed-oil; benjamin, in drops, two drachms; virgin-wax, the bulk of a filbert. Boil all this together, till it is reduced to one third; and, while it is a-boiling, never ceaſe to ſtir with a little ſtick. When done, bottle, or pot it in a large-mouthed veſſel.

2. To uſe that varniſh, warm a little the plate you intend to engrave upon; and, taking a little of the varniſh with the tip of your finger, ſpread it delicately over the plate. Obſerve to put as little of it as you can, and to lay it on as ſmooth and equal as poſſible. When done, ſmoak the plate, on the varniſh ſide, with a candle, paſſing and repaſſing it gently, over the flame of it, till it is black every where. Set it again, now, on the chaffingdiſh, wherein there are kindled charcoals; and, when the plate has done fuming, then the varniſh is ſufficiently hardened. You may then chalk, draw, and etch, whatever you will on it.

Such is the true receipt of the varniſh, which the famous *Callot* made uſe of, to engrâve his moſt admired, and truly admirable, ſubjects.

LV. *A varniſh to lay on paper.*

Begin by laying on your paper one firſt coat of very clear and thin ſize. This being dry, melt three parts of oil of ſpike and one of roſin together: and, when come to the conſiſtence of a varniſh, you lay one ſecond, and light coat of this over the firſt made with ſize.—This varniſh is very fine, when very ſmoothly, and equally, laid on.

LVI. *How to caſt figures in moulds.*

Take one pound of Paris-plaiſter, and an equal quantity of bricks, pounded into an impalpable powder;

join to this one ounce of *alumen plumeum*, and one of ammoniac ſalt. Dilute all together, gradually, in clear water, without abſorbing it, as you are to make a paſte of it; and make your moulds with it.

LVII. *Another varniſh.*

Take maſtich's and ſandarac's, equal parts, of each two ounces. Pound them into a fine powder. Have three ounces of lintſeed-oil, and as much of ſpirit of wine, in which, being mixed, you put your powders. Set this, in a well-ſtopped matraſs, in a *balneo mariæ* to boil and concoct together for one hour: and this varniſh is done.

LVIII. *L'Abbe* Mulot's *varniſh.*

Take of ſpike oil, one ounce; pulveriſed ſandarac, half an ounce. Put all in a bottle, and ſet it in the ſun till perfectly diſſolved. This compoſition is particularly fit to varniſh gold or ſilver, in ſhell, which has been laid on, with a hair pencil.

LIX. *A varniſh to lay over plaiſter-works, or figures.*

Take fine white Alicante ſoap; raſp it fine, and put it in a well glazed pipkin. Diſſolve that ſoap, in the pipkin, with your finger and a little water, added gradually, and little at a time, till it comes thick and milky. Cover this, for fear duſt ſhould come to it; and let it reſt ſo for ſeven or eight days. Take, next, a ſoft and ſhort hairy bruſh; dip it in this ſoapy preparation, and waſh the plaiſter figure all over with it, then ſet it a-drying. When dry, rub it gently with a piece of cloth, placing yourſelf between it and the light, that you may perceive better the places which take the poliſh; when done, thus, every where, your ſtatue will appear as white, ſhiny, and beautiful, as alabaſter.

LX. *A very fine red varniſh.*

1. Take oil of ſpike, one pound; and litharge as much. Boil both together, for one quarter of an hour, in order to clarify the oil, or, what is called, ungreaſing it. When thus clarified, or ungreaſed, take one pound of it, and ſix ounces of ſhell-lack, which you melt together in a matraſs, or a varniſhed pipkin. Then, dilute in it ſome cinnabar, which had previouſly been grinded on a ſtone, with chamber-lye; and the varniſh is done.

2. Of this compoſition, lay firſt three or four coats on your work, and allow time ſufficient, between each coat, to dry. When the laſt is given, lay on another of pure and clear varniſh without cinnabar, made with one part of ſpirit of wine, and four of oil of ſpike, and ſome ſhell-lack.

LXI. *A varniſh to gild certain parts of ſtamped leathers, ſilvered in ſome places with pewter-leaves, and otherwiſe adorned with running ſtalks of flowers, of various colours, figures, and other ſorts of embelliſhments.*

1. Take lintſeed-oil, three pounds: of that ſort of varniſh called *Arabian ſandarac*, and rough pitch equal quantities, one pound each; and ſaffron, half an ounce. Inſtead of ſaffron, you had better, if you have that opportunity, make uſe of the ſtaminas of lilies, which are infinitely preferable.—Put all into a varniſhed pipkin, and ſet it over the fire. Take great care not to have it burn; and, to avoid it, keep continually ſtirring the matter with a ſpatula. When you want to know whether it be, or not, ſufficiently done, have a hen's feather, juſt dip it in, and off quickly. If the feather be grizzeled, it is a proof the matter has ſufficiently boiled. Therefore, take it off from the fire, and throw in one pound of well-choſen and picked hepatica aloes, in powder. Mix well this with the ſpatula, and ſet it again on the fire, to concoct well this addition with the reſt. If you ſee that your matter boils and ſwells, you muſt take it off, and let it reſt awhile; during which time, you take ſome of the coals away. Set it now again upon this more moderate fire, ſtirring always well, that all may be perfectly incorporated. As ſoon as this ſeems to you done, you take it off, let it cool a little, and ſtrain it through a ſtrong coarſe cloth, and keep it for the following uſe.

2. Apply the ſilver, or pewter leaves, on the leather, with the white of an egg, or gum-water. When theſe are properly laid on, give one coat of the abovementioned varniſh, quite warm, on ſuch places as you want to appear gilt, and ſet it in the ſun. When dry, it looks like gold.

N. B. The *Arabian ſandarac*, we have preſcribed above,

bove, is known by ſome, under the denomination of *Gum of Juniper.*

LXII. *To imitate porphyry.*

Take Engliſh brown red. If too red, add a little umber, to it, or ſome ſoot. Pound all into powder. Then have a plank, or marble ſtone, of a fine poliſh, which you overlay with oil. Make a colour compoſed of brown red, and a little flat, or Venetian lake, previouſly grinded with gum adragant. Then, with a largiſh bruſh, take of that colour, and aſperſe your oiled marble with it, by ſtriking the handle of the bruſh on your wriſt, as the book binders do to ſtain the covers of their books. When your marble ſhall have been thus well ſpeckled all over with that red colour, you let it dry. Then, taking your lump of brown red and umber, you dilute it, make a thin paſte of it, and lay it on your ſpeckled marble. When this is alſo dry, it admits of a very fine poliſh, and looks like porphyry.

LXIII. *To imitate ſerpentine.*

1. Take auripigment, which you grind well firſt with water, and next with a little addition of indigo. Let this dry; and, when dry, reduce it to an impalpable powder; then mix it with a little gumadragant, and make a paſte of it, as in the above receipt.

2. After this is done, take ſome lighter green, put a little more auripigment with the indigo, till you come to obtain the true hue of the ſpots which are in the *ſerpentine.* Of this colour you take with a bruſh, and aſperſe with it a marble piece in the ſame manner exactly as deſcribed in the preceding article; and when this is dry, you lay your firſt prepared paſte on it.—For the reſt, do as above.

N. B. You may thus, with a bruſh, imitate, or even invent, all ſorts of marbles, according to your taſte and fancy; and, when the firſt laid colours are dry, lay your paſte over them, let them dry likewiſe, and poliſh.—For example, have ſeveral different colours prepared as above; aſperſe, or mark with each of them ſeparately, and one after another, on ſome piece of glaſs, or well poliſhed marble. Then make a paſte and lay it over them, of whatever colour you will. If you will have it white, it is done with whitening, or white-chalk, and a little mixture of yellow ocher.—Theſe ſorts of works admit of being overlaid with an exſiccative varniſh.

CHAP. IV.

SECRETS relative to MASTICKS, CEMENTS, SEALING-WAX, &c. &c.

I. *A ſubtile maſtich to mend all ſorts of broken veſſels.*

TAKE any quantity of white of eggs, and beat them well to a froth. Add to this ſoft curd cheeſe, and quick-lime, and begin beating a-new all together. This may be uſed in mending whatever you will, even glaſſes, and will ſtand both fire and water.

II. *Another.*

Take roſin, yellow wax, ſulphur, and cement. Sift this laſt very fine, and melt all together; then uſe it.

III. *A maſtich to make rock-works.*

Take ſix parts of Paris-plaſter, and one of ſoot, well mixed together.

IV. *An excellent maſtich.*

Take coarſe turpentine, four ounces; friccaſſeed and pulveriſed bullock's blood, one ounce; black pitch, four; wax, two; roſin, one; pounded glaſs, one; ciment, one; and ſulphur, half a one. Boil all together, after having well pounded and grinded each of them ſeparately.

V. *A maſtich for broken wares.*

Pound a ſtone-jar into an impalpable powder, and add to it ſome white of eggs and quick-lime.

VI. *Another maſtich.*

Take quick-lime, cotton and oil, of each equal parts in weight.

VII. *Another.*

Take frankincenſe and maſtich, of each half an ounce; bol armeniac and quick-lime, of each, two ounces.

VIII. *A cement.*

Take roſin, one ounce; grinded tile, half an ounce; maſtich, four ounces.

IX. *A glue to lay upon gold.*

Boil an eel's ſkin; and a little quick-lime together: when boiled gently, for the ſpace of half an hour, ſtrain it, and add ſome white of eggs beaten: bottle, and keep it for uſe.—The method to uſe it afterwards, is to warm it and lay a coat of it on marble, delfe, Worceſter, Stafford, or any other earthen wares, &c. and, when nearly dry, write, paint, or draw, what you pleaſe on it with a pencil, and gold in ſhell.

X. *A ſize.*

Take half a pound of freſh-cod's tripes; boil it in two quarts of white-wine, reduced to one third. To take off the bad ſmell, add, while it boils, a little cloves and cinnamon. Then, throw this ſize in whatever mould you pleaſe, to make it in flakes.

XI. *An exceeding good ſize, called* Orleans ſize.

Take the whiteſt iſinglaſs you can find; ſoak it in finely filtered quicklime-water, during twenty-four hours. When that time is over, take it off, bit by bit, and boil it in common water.

XII. *A cement for delfe, and other earthen wares.*

Take what quantity you will of wax and roſin. Melt them together, and add, while in fuſion, a diſcretionable quantity of marble pounded into a very fine powder.

XIII. *Another, for the ſame purpoſe, which reſiſts water.*

Take quick-lime, turpentine, and ſoft curd-cheeſe. Mix theſe well together; and, with the point of a knife, put of this on the edges of the broken pieces of your ware, then join them together.

XIV. *A cold cement for ciſterns and fountains.*

Take litharge and bol in powder, of each two pounds; yellow ocher and roſin; of each, four ounces; mutton ſuet, five ounces; maſtich and turpentine, of each two ounces; oil of nuts, a ſufficient quantity to render malleable. Work theſe all together; and, then it is fit for uſe.

XV. *A*

XV. *A lute to join broken veſſels.*

Diſſolve gum arabic in chamber-lye over a chaffing-diſh: ſtir with a ſtick, till perfectly diſſolved, then add an equal weight of flour, as you had of gum arabic, and concoct the whole for one quarter of an hour, or more, if requiſite.

XVI. *A ſtrong glue with ſoft cheeſe.*

1. Take a cheeſe from Auvergne. Let it be the fatteſt and neweſt you can find, and neither dry, nor moiſt; waſh it in very warm water, ſo long as it ſhould remain clear; then ſet it to rot, in clean water, till it begins to ſtink. As ſoon as you find it is ſo, boil it in water, with quick lime; and, when diſſolved into a glue, take it off from the fire, it is done.

2. If you dry ſome whites of eggs in the ſun, and that, pounding them into powder, you ſhould add ſome of that powder with the cheeſe when you diſſolve it along with the lime, the glue will be ſo much the ſtronger.

N. B. Obſerve that no other cheeſe, beſides that which comes from Auvergne, has the quality requiſite for this compoſition.

XVII. *To make a ſtrong maſtich.*

Take one pound of roſin; one quarter of a pound of ſhoe-makers roſin, two ounces of new wax, two of black pitch, and one of tallow. Boil all gently together on a ſlow fire: and, when well incorporated together, add ſome brick-duſt, finely ſifted, according to diſcretion.

N. B. The quantity of tallow is to be proportioned to the degree of dryneſs you require in this compoſition; ſo that you may, on that principle, diſcretionally increaſe, or diminiſh, the preſcribed doſe of that ingredient.

XVIII. *To make corks for bottles.*

Take wax, hog's lard, and turpentine, equal quantities, or thereabouts. Melt all together, and ſtop your bottles with it.

XIX. *To imitate rock works.*

Take white wax and roſin equal parts; and brimſtone, a quarter part of both the other two put together.

Melt the whole at the ſame time, and throw it in cold water. It will form itſelf like the ſcum of the ſea. When you want to apply it, warm only that part by which you deſign to ſtick it.

XX. *To rub floors with, whether boards, bricks* &c.

Take a pail full of ſcarlet waſh from the dyers, with this ſtuff, rub your floor by means of an old hair broom, Let it dry, and obſerve not to tread upon it, till it is perfectly dry, then have from the plumber ſome black lead which is generally of a black or reddiſh hue, ſqueeze well all the nobs you may meet with between your fingers, and rub your floor all over with it, with your hands, then, with a rough dry bruſh, ſcrub well your floor, till it comes fine and ſhiny.

XXI. *A compoſition to make a relief fit to gild over, or even to raiſe an embroidery.*

1. Take one pound of lintſeed oil; ſandarac, maſtich, burgundy pitch, aſſa-fætida, new wax, and turpentine, equal quantities, four ounces of each.

2. Pound all, and put it in a varniſhed new pipkin, to boil for two hours, over a ſlow fire. Then keep it in that ſame pot to make your paſte at any time afterwards with it, and as you want it.

3. This paſte is made as follows. Take ceruſe and umber reduced into a ſubtile powder, which you dilute, with the above compoſition, in ſufficient quantity to make a ſort of dough with it; obſerving never to make more of it at a time than you think to employ directly; for when, dry, it becomes as hard as marble.

4. The method of uſing it, is to draw, on whatever you will, whether cloth, linen, ſilk, thread, plaiſter, &c. the outlines of what you want to have raiſed in relief, as arms, trophies, figures, fruits, flowers, &c. according to your deſign, or fancy. Then you fill up thoſe ſketches, and raiſe them with the above paſte, while it is ſoft; and, when it begins to dry, you gild, ſilver, or paint it over, as you like.

5. You may paint alſo the ground of thoſe reliefs with whatever colours you pleaſe, and enrich it with gold ſpangles, if you chuſe. The way to do it, is by laying

firſt a coat of varniſh of iſinglaſs and roſin melted together.

N. B. There is a work of this kind to be ſeen, at Vienna, on the great altar of the Virgin Mary.

XXII. *Sealing wax:* Recipe 1ſt.

Take one pound of ſhell lack; benjamin and black roſin, half an ounce each; vermilion, eight drachms. The whole being melted, make your ſticks on a marble table, rubbed over with oil of ſweet almonds; and take care to have done before the wax is cold.

XXIII. *Another ſealing wax.* Recipe 2d.

Take turpentine and ſailor's pitch ſix drachms of each; either ſhell-lack or dragon's blood, one: ſulphur citrinum, two. Mix and incorporate all together over the fire, and form your ſticks.

XXIV. *Another.* Recipe 3d.

Take gum *hæderacea*, ſhell-lack, ſandarac of the ancients, otherwiſe printers roſin, and maſtich, two ounces of each: roſin, four ounces; turpentine, half an ounce. Mix all in a very warm bell-metal mortar, and make your ſticks.

XXV. *Another.* Recipe 4th.

Take ſhell-lack and maſtich, of each, one ounce; dragon's blood, three; cinnabar, half an ounce; turpentine, one. Mix all, and make your ſticks.

XXVI. *Another.* Recipe 5th.

Take greek pitch, one pound; white maſtich, five; frankincenſe, five ounces; cinnabar, as much as you ſee it requiſite to give the red colour.—Put the pitch firſt on the fire, to melt; next put the maſtich and the powder of frankincenſe; and, laſt of all, the cinnabar grinded with a little oil. Incorporate all well, and take it off from the fire, to make your ſticks.

XXVII. *Another.* Recipe 6th.

Take ſhell-lack, twelve ounces; maſtich and roſin, of each, one ounce; dragon's blood, three; minium, half an ounce. Diſſolve the ſhell-lack in vinegar; add, if you will, ſome turpentine-oil and ſulphur to the quantity of four ounces of each, and two of ammoniac ſalt.

The whole being melted, make as faſt as you can your ſticks of the form and ſize you like.

XXVIII. *Another.* Recipe 7th. *Exceſſively good.*

1. Take ſhell-lack, *&c.* *&c.* pound them all into a very fine and impalpable powder. Then have two wooden pallets preſent upon them, before the fire ſome powder of one ſort, to melt, then move it, and ſtir it with the ſaid pallets. Take again of another powder in the ſame manner, and mix it in the ſame way before the fire with the firſt. Then another, and another, till they are all, by this method, perfectly well amalgamated together.

2. Have now ſome cinnabar in powder, which you put in a pan with water. In that water and cinnabar-powder, ſet to infuſe, or only touch your incorporated gums, to make the compoſition take colour. When thus ſufficiently coloured, take it out of the water with both your hands and the wooden pallets, and have a perſon to help you. This, having wetted his hand, will draw ſome of the ſaid gum, and handling it on a table, will form the ſticks.—For two pounds of gums, two ounces of cinnabar are wanted.

XXIX. *Another.* Recipe 8th.

Take gum-lack, four ounces; cinnabar, half an ounce; roſin, four and a half. Melt the roſin with a little vinegar, and ſkim it. Then take it out of the fire; then mix it with the lack and vermilion both well pulveriſed; and, when the compoſition begins to cool, form your ſticks with it.

XXX. *An excellent ſealing-wax, by* Girardot. Recipe 9th.

1. Put four ounces of roſin, and four and a half of whitening, and melt them together, in a non-varniſhed pipkin, over kindled coals. While this is in fuſion, have another pot, ſimilar to this, in which you keep two ounces of ſhell-lack, in diſſolution with vinegar. Now ſteep a wooden ſtick in the firſt pot, and another in the other pot; then, over a chaffingdiſh, turn quickly, one over another, the ends of your two ſticks together, to mix and incorporate well what matter they ſhall have brought along with them from each pipkin. And when, after having turned them thus a reaſonable time, you ſee

both matters are well embodified, ſteep them, at different times, in the following liquor, to colour them.

XXXI. *A colour for the above wax.*

1. Grind, upon a porphyry table, two ounces of cinnabar, with a ſufficient quantity of nut-oil, to make it a liquid. In this you dip your ſticks, at ſeveral times; and take care, in doing it, the compoſition ſhould not grow cold. Wherefore you muſt, each time you ſteep them in the colour, carry them again over the chaffing-diſh, to keep them in a due ſtate of malleability. And when you find the matter ſufficiently tinged with red, form your ſticks as uſual, on a marble, or other well poliſhed, table.

CHAP. V.

SECRETS concerning COLOURS & PAINTING.

§ I. *To paint in varniſh on wood.* (Uſeful to Carriage painters.)

I. *The preparation of the wood, previous to the laying of colours, and the general proceſs obſerved in laying them on it.*

1. YOU muſt firſt lay on the wood two coats of Troyes-white, diluted with ſize-water. Next, lay over theſe a third coat of ceruſe. Then having mixed the colour you want with turpentine oil, add the varniſh to it, and lay it on the wood, previouſly prepared as follows.

2. Poliſh the wood, firſt, with ſhavegraſs or horſetail, and then with pounce-ſtone. Lay afterwards ſix or ſeven coats of colour mixed with varniſh, allowing after each coat a ſufficient time to dry, before laying on the next; then poliſh over the laſt coat with pounce-ſtone grinded on marble into a ſubtile powder. When this is done, lay two or three coats of pure white varniſh. As ſoon as this is dry, rub it over with a ſoft rag dipt into fine olive oil, then rub it with tripoly reduced

into ſubtile powder; and having wiped it with a clean piece of linen, paſs a piece of waſh-leather all over it.

II. *To make a black.*

1. The black is made with lamp, or ivory, black, grinded on a marble ſtone, with vinegar and water, till it is reduced into the moſt impalpable powder. To keep it, put it in a bladder.

2. There is a ſort of black which, from its hue, may be termed a velvet black. This is made of ſheep's trotters' bones, burnt and reduced by grinding, like the other black, into an impalpable powder. You keep it the ſame as the other.

III. *To make a blue.*

Burnt turnſol mixed with quick-lime and water, then ſized with leather ſize, makes the blue.

IV. *To make the Gridelin.*

Grind cochineal with white lead and a little Venetian lake. According as you put more or leſs of this laſt ingredient, you make it darker or clearer.

§ II. *To paint on paper.*

V. *For the red.*

To make a red; take flat, or Venetian lake and Braſil wood, and boil all together, with an addition of black lead.

VI. *To make a fine yellow.*

To make a yellow, you muſt boil ſome kermes in a water impregnated with orpine.

VII. *To make a green.*

The green is made of a mixture of verdigriſe, ſap-green, Hungarian green, and *ter-verte.* The whole grinded on marble with a pretty ſtrong leather ſize.

VIII. *To transfer a print on vellum, and then paint it.*

Chuſe your print, and fit a ſheet of tranſparent, or varniſh paper to it, for width and breadth. Lay it on the print, and fix it by the four corners, and the middle part of the four edges, on that print, by means of a little white wax, the bulk of a pin's head. Then, with a very fine lead pencil, ſketch out the varniſhed paper, all the outlines and turns of the print which you plainly ſee through. When done, rub the back of this varniſhed paper all over with red chalk, and carrying it on the vellum, fix it on it, as you did on the print. Then with a wooden, or ivory, blunt point, if you paſs over all the ſtrokes which are delineated on the varniſhed paper, the red chalk of the back will ſet off in all thoſe parts, and lie on the vellum, whereon you will find the print perfectly ſketched, and fit to receive what colours you like.

§ III. *Compoſitions for Limners.*

IX. *How to prepare moſt colours for limning.*

Moſt colours are prepared, or grinded, with gum-arabic. Ocher makes the yellow; *courant mourant*, the white; verdigriſe, the green; ceruſe, the grey; lamp-black, the black; cinnabar, the red; and gold in ſhell, the gold.

X. *To make what is called* lamp-black.

Put a large week of cotton in a lamp filled with nut oil, and light it. Prop over the flame an earthen diſh; and now and then viſit this diſh, and gather all the black which fixed itſelf to it.

XI. *Another way of making black.*

Burn ſome nut ſhells in an iron pan, and throw them in another full of water. Then grind them on marble with either oil or varniſh.

XII. *To make a blue.*

Whitening grinded with verdigriſe will make a very fine blue.

XIII. *To make a turquin blue.*

German turnſol infuſed for one night in chamber lye, then grinded with a diſcretionable quantity of quick-lime, in proportion as you want to have it paler or darker.

XIV. *A fine green for limning.*

Grind ſome verdigriſe with vinegar, and a very ſmall quantity of tartar. Then add a little quick lime, and ſap-green, which you grind alſo well with the reſt, and put in ſhells for keeping. If it become too hard, dilute it with a drop of vinegar.

XV. *Another for the ſame purpoſe.*

Grind on a marble ſtone, verdigriſe, and a third of tartar, with white-wine vinegar.

XVI. *To make what is called the* Sap-green, *or blackberry green.*

Expreſs the blackberry juice, when full ripe. Add ſome allum to it, put all in a bladder, and hang it in the chimney to dry.

XVII. *To make lake.*

Take three parts of an ounce of Braſil wood ; a pint of clear water ; one drachm and a half of roch-alum ; one dozen and a half of grains of ſalt of tartar ; the bulk of two filberts of mineral cryſtal ; three quarters of a pound of the whiteſt ſound, or cuttle-fiſh bones, raſped. Put all together in a ſaucepan to boil, till reduced to one third. Strain it three times through a coarſe cloth. To make a finer ſort, ſtrain it four times. Then ſet it in the ſun under a cover to dry. That which dries the ſooneſt is the fineſt.

XVIII. *To make a liquid lake.*

Pound ſome cochineal and alum together ; then boil them with a certain quantity of lemon-peels cut very ſmall. And when it is come to the right colour you want, paſs it through a cloth.

XIX. *Another way.*

On a quantity of alum and cochineal pounded and boiled together, pour, drop by drop, oil of tartar, till it comes to a fine colour.

XX. *For the vermilion.*

Vermilion becomes very fine in *aqua-vitæ*, or in child's urine. But it will be ſtill finer, if you put it in *aqua-vitæ* with a little ſaffron. It is uſed with whipped whites of eggs.

XXI. *For the making of carmine.*

1. Boil two quarts of ſpring water in a varniſhed pipkin ; and, when it boils, throw in ſeven pugils of pulveriſed *chouam.* After this has thrown two or three bubbles, take it off from the fire, and decant it in another clean pipkin. Then put in this water five ounces of cochineal in powder, and boil it for a quarter of an hour. Add three pugils of *autour*, in fine powder, and make it throw four bubbles. Then add three pugils of Roman alum in powder, and take it out directly from the fire, which muſt be made of live coals.

2. Strain all this through a linen cloth, and divide this liquor into ſeveral delft veſſels, and ſo let it remain for three weeks. At the end of that term pour off the water by inclination. You will find under a kind of mouldineſs, which you muſt carefully pick off, and then gather the carmine.

Note. Every five ounces of cochineal give one of carmine. It is to be grinded on marble.—A general opinion prevails, that this operation is beſt done in the creſcent of the moon. How far it is needful to obſerve this precept is left to the wiſe to determine.

XXII. *Of the choice of colours fit for expreſſing the various complexions.*

1. For women and children; mix a little white and a little turnſol.

2. For men; a mixture of white and vermilion is proper.

3. For old folks; you muſt uſe ſome white and ocher.

4. For horſes; you muſt chuſe biſtre, ocher, and white.—The dark brown horſes require a little addition of black.—The grey want nothing but biſtre and white.

§ IV. *To make tranſparent colours.*

XXIII. *For the green.*

Put in very ſtrong vinegar, verdigriſe, rue-juice, and gum-arabic. Set this in the ſun for a fortnight, or, if you have no ſun, boil it on the fire. Strain it, bottle and ſtop it.—Shake it well before uſing.

XXIV. *For the red.*

Make a lye with ſalt of tartar. In it, put to infuſe for one night, ſome India wood, with a little alum. Boil all, and reduce to one third. Run it through a linen cloth, and mix ſome gum-arabic with it.—With more or leſs alum, you make it of a higher or paler hue.

XXV. *For the yellow.*

Bruiſe Avignon ſeed, which we, in this country, call *French Berries*, and put it in a lye of ſalt of tartar to boil on the fire, to the reduction of two thirds. Run it, and boil it one bubble more. Then bottle and cork it.—It muſt be ſhaken before uſing.—A ſmall addition of ſaffron renders it more lively.

XXVI. *For the blue.*

Soak in chamber-lye, for one night, a certain quantity of German *Palma Chriſti*. Take it out and grind it with a little quick lime.—More or leſs quick lime will raiſe or lower it in hue. And nothing more is required to dilute it than chamber-lye and gum-arabic.

XXVII. *Another blue, very like ultramarine.*

Grind ſome indigo on porphyry with turpentine oil. Put it afterwards in a glazed pipkin, and lute it well. Let it thus lay for the ſpace of ſix weeks. The longer you leave it there, the more blue it will be.

XXVIII. *A pale red to paint on enamel.*

1. Take the filings of a piece of good iron. Put them in a matraſs with *aquafortis*, and ſet it on a ſlow fire. Let it boil gently till the filings are all diſſolved.

2. When this is done, pour a little warm water into the matraſs, and let it remain a few hours on the fire, then pour all into another veſſel. When the liquor ſhall be quite clear, decant it out gently, and leave the powder, which is at the bottom, to dry.

3. Put this dried powder in a new crucible well covered and luted, and then neal it gently on a very regular fire; and, a little while after, take it out and let it cool.

4. Now one drachm of that powder, and three of yellow Dutch beads well grinded with maſtich-oil, will give full ſatisfaction.—This is far from being a contemptible *ſecret*.

XXIX. *Proceſs of making the purple, for painting on enamel; a moſt admirable ſecret.*

1. Take one drachm of very fine gold, forged weak. Cut it in ſmall bits, and neal it. Put that gold into a matraſs, with one ounce of ammoniac ſalt, and two of good *aquafortis*, and ſet it on a gentle fire to run all into liquor.

2. Have two ounces of clear water, nearly boiling, and throw it in the matraſs. This done, pour the whole in a glaſs phial of more than a quart ſize, to

which you will add one ounce and a half of oil of tartar drop by drop. It will occaſion an ebullition, which being ceaſed, you muſt fill the bottle with water, and let it reſt till the gold falls to the bottom.

3. When the water is quite clear, decant it out gently, for fear of diſturbing the gold and loſing it. Then fill the bottle with new water, and do the ſame, repeating this operation till the water is as clear when you decant it out, as when you put it in, and has no more ſmell.

4. Take your gold out of the bottle, and put it on a fine brown paper, ſolded in four or five doubles, and turned up by the edges, in form of a little caſe or mould. There let it dry; and, when dry, keep it for uſe.

5. Grind, next, ſome fine white froſt-glaſs; mix it with water, put it in a bottle, and ſhake it, then let it ſettle. When this powder has fallen to the bottom, decant off the water, and let the powder dry in the ſame veſſel in which it is.

6. Now the proportion to make the purple colour: Take three grains only of your aforeſaid gold duſt to thirty of the white froſt-glaſs, thus prepared. Mix both theſe powders in a calcedony-mortar with a good deal of clear water. After the powder has ſettled to the bottom of the mortar, decant out the water, and let the powder dry in the mortar itſelf.

7. This done, take the powder out of the mortar; and, putting it on a white bit of paper, dry it by a ſlow fire, till you ſee it has acquired a fine purple hue.

8. Grind, now, this powder with a little oil of ſpike, and put it in little caſes made with cards, of which the edges, are turned up. When the card has ſoaked the oil, the whole operation is accompliſhed.—It is to be preſerved by putting it in ſmall boxes, and put them in a dry place.

XXX. *How to make a fine fleſh colour.*

9. The mere addition of a little black to the above compoſition will make the fineſt colour for complexions, or fleſh-colour, and may juſtly be deemed a ninth article in the proceſs which is to be obſerved in its fabrication.

XXXI. *A*

XXXI. *A good way to make carmine.*

Make a little bag, tied very cloſe, of fine Venetian lake. Put it in a little varniſhed pipkin, with rain-water and cream of tarter, and boil it to a ſyrup. Thus you will have a fine carmine colour.

XXXII. *Another way.*

Grind dry, on porphyry, ſome of *coccinella urſuta* ſugarcandy, roch-alum, and gum-arabic, all nearly in equal quantities, except the gum, of which you put a little leſs. Put theſe powders into a glaſs phial, and pour over a ſufficient quantity of brandy to cover them, and ſqueeze over the juice of a lemon. Stop well the bottle, and ſet it in the ſun for ſix weeks. Run the colour into ſhells, taking care that none of the ground ſhould run out with it.

XXXIII. *The whole proceſs of making ultramarine, three times experienced by the author.*

1. Make ſome of the browneſt *lapis* red-hot in a crucible, then throw it into vinegar. Repeat this three times. When calcined, pound it in a mortar, and ſift it. Then grind it on porphyry, with a mixture of lintſeed oil and ſpirit of wine, in equal quantities, and previouſly digeſted together in a matraſs, and often ſhaken to prepare them for this uſe. When you ſhall have ſubtiliſed your *lapis* powder, then incorporate it with the following cement.

2. Lintſeed oil, two ounces; Venice turpentine, three; maſtich, half a one; *aſſa fœtida*, two; black roſin, as much; wax, half an ounce; yellow roſin, three. Boil all in a glazed pipkin, for a quarter of an hour; then run it through a cloth into clear water. Take it out of that water; and, taking of this, and of the grinded *lapis*, equal quantities, incorporate them in a glazed pan, and pour ſome clean and clear warm water over, and let it reſt for a quarter of an hour. Stir this water with a wooden ſpatula; and, in leſs than another quarter of an hour you will ſee the water all azured. Decant, gently, that water into another glazed pan. Pour new warm water on the grounds, and proceed as before, continuing to ſtir and beat it well; then decant again this new azured water with the former.

Repeat doing ſo, till the water is no more tainted with any azurine particles.—When done, ſet your azured waters in evaporation, and there will remain at the bottom a very fine Azure of Ultramarine, *viz.* four ounces of it for every one pound of compoſition. Of the remainder, you may make what is called *cender-blue.*

XXXIV. *Another very fine and well-experienced ultramarine.*

Take the fineſt *lapis-lazuli* you can find. Break it in little bits, and make it red hot in a crucible, between blaſting coals. When red hot, throw it in white-wine vinegar ; then dry it, and pound it in a marble mortar with a wooden peſtle. Should it not pound eaſily, calcine it again as before, and throw it again in vinegar, *&c.* then try it again in the mortar, and if it do not pound yet, repeat again the ſame proceſs, till it does at laſt eaſily ſubmit to be pulveriſed. After it has been put into a fine powder, grind it on a porphyry ſtone, with good *aquavitæ*, till it is impalpable. Then gather it up in little cakes, which you ſet a-drying on paper or ſlates. When dry, if you pulveriſe it, you have a fine ultramarine of it.

XXXV. *A very good and experienced paſtil to make ultramarine of.—The doſes as for one pound.*

Take nut or lintſeed oil, three ounces ; new wax, and fine roſin, three ounces of each ; roſin, one ; Burgundy pitch, four ; *oliban*, otherwiſe male frankincenſe, two drachms ; dragon's blood, one. Melt all theſe ingredients, one after another, in the ſame order as they are here preſcribed. That is to ſay, put in a varniſhed pipkin, the oil firſt ; and, when a little warm, put in the roſin by little bits. This being diſſolved, put in the chalk pulveriſed, pouring it gently, and by little at a time, leſt it ſhould blaze. As ſoon as the roſin is melted, pour the roſin in powder, and by degrees likewiſe. Next add the Burgundy pitch, broken in ſmall bits, for it does not admit of pulveriſation ; you muſt, notwithſtanding, put it in but by little at a time ; and, when all are introduced and well diſſolved, you add gradually the doſe of dragon's blood powder, and let it diſſolve like the other drugs.—Stir this compoſition with a ſtick, by means of which you are to judge whether or not your paſtil is done. To know it, let a drop fall from the ſtick into a pan of water; then, working it between your fingers, you ſee whether or not it ſtick to them. If it ſtick, the paſtil is not done, and you muſt let it remain longer on the fire; then repeat the trial again, till it does not ſtick to your fingers, as a proof of its being arrived at its degree of perfection.—Throw it in a glazed pipkin filled with cold water; and when it becomes a little cold, make it into a ball with your hands, which you ſhall have previouſly greaſed with lintſeed oil. Then you may keep it as long as you pleaſe for uſe. Stay, however, three or four days before uſing it the firſt time.

XXXVI. *The way of mixing the* lapis *with the paſtil, to make ultramarine.*

1. Dilute, as thick as you can, a quantity of the before-mentioned impalpable powder of *lapis lazuli*, with a liquor made of two parts of *aquavitæ*, and one of lintſeed-oil.

2. Melt in another glazed pan, without the aſſiſtance of water, and over a gentle fire, the paſtil deſcribed in the preceding receipt.—Obſerve that your paſtil be perfectly purified from any particles of water it might have carried away with it, when you threw it in water in order to form it into a ball.

3. When the paſtil is melted, throw into it the thick paſte you had previouſly made of *lapis lazuli* with brandy and lintſeed-oil. Stir and mix this ſo well, that the whole be moſt perfectly united and incorporated. Then let it remain twenty-four hours, and cover it well for fear of any duſt getting at it.

4. After the ſaid twenty-four hours are elapſed, put in this pan a quantity of lukewarm water, proportionable to that of the matter, and work well the whole together with two wooden peſtles, till the water becomes quite blue, which you will immediately decant off into a china baſon, and cover carefully for fear of duſt.

5. Put new lukewarm water again on the ſame paſtil. Work it a-new as before, and proceed the ſame as for the firſt time.—Repeat this operation as many times as you find the water coming blue, and till you perceive

it begins to turn gray or white, which is a convincing proof that there is no more any thing good in the paſtil. —Be careful to range in order the different bowls in which you have decanted your tinged waters; and, to avoid miſtakes, number them by firſt, ſecond, third, *&c.*

6. Let theſe waters ſettle, and when quite clear as when you put them in, decant them again with all the gentleneſs poſſible, each into another ſimilar veſſel, for fear of looſing any of the ultramarine which lies fixed all round the ſides and bottom of the bowls, and might be, though never ſo little, carried off with the decanted waters. When theſe waters are duly decanted off, cover again, carefully, the bowls, for fear of the duſt, and let the ultramarine, which lies round them, dry perfectly. When dry, bruſh it down gently to the bottom, with a new and ſoft hair bruſh, and gather your powders ſeparately with the ſame numbers on each parcel, agreeable to that of the bowls whence they come.

7. The firſt ultramarine is the fineſt; the ſecond is not ſo much ſo as the firſt; neither is the third ſo fine as the ſecond. And it goes thus, decreaſing in beauty, merit, and value.

Obſervations on the above proceſs.

1. Ultramarine might be drawn from the paſtil, by working it with the hands inſtead of peſtles. But, as it fatigues a great deal more the articulations by that ſort of working, than by the other, there is room to think, that by this mode of proceeding, each ſingle operation might be attended with ſome imperfection; which is the reaſon why the peſtles are preferable.

2. Some people make their *lapis* red hot on the bare coals, then ſteep it in diſtilled vinegar, repeating this ſeveral times till it becomes fryable.

3. But it is much preferable to make it red hot in a crucible; becauſe, ſhould the fire make it ſplit, the bits will remain in the crucible. Now it need not be wondered at if it does, particularly when calcinations are often repeated.

4. The *lapis*, which is of a fine blue, and ſtriped with gold or ſilver, is the beſt to make ultramarine of.

5. The *lapis* is alſo reckoned to be of a good quality,

when it preſerves its fine colour, even after it has been made red hot in blaſting charcoals.

XXXVII. *Another ſecret to compoſe a fine blue, fit for waſhing, in drawings, inſtead of ultramarine, which is both too dear, and too ſtrong, to be uſed for that purpoſe.*

1. Gather in the ſummer, a large quantity of blowart which grows in the fields among the corn. Pick well their blue leaves off, and throw the remainder away. Have lukewarm water impregnated with impalpable powder of alum. Put the above picked blue leaves into a marble mortar with a ſufficient quantity of that alum water, to ſoak them only. Then, with either a wooden or marble peſtle, pound them till the whole is ſo maſhed, as to give eaſily all the juice by expreſſion through a new cloth. When you ſtrain it, you muſt do it over a china or glaſs bowl, in which there is water impregnated with the whiteſt gum-arabic you can find.

2. Obſerve that you muſt not put much alum in the firſt water, if you are deſirous of preſerving the brightneſs of the colour: for, by putting too much of that ingredient, as well as of the water impregnated with it, you darken the tone of the colour.

3. *Note.* By means of the ſame proceſs, you may likewiſe draw the colours from every flower which has any great eclat. You muſt not neglect to pound them with alum water, which prevents the colour from ſuffering any alteration; as it ſometimes happens at the very firſt bruiſe.

4. To render theſe colours portable, you ſet them a-drying in the ſhade, in china or glaſs veſſels, well covered to fence them againſt the duſt.

XXXVIII. *The true ſecret of making* Iris-*green.*

1. Take a large quantity of the flowers of that name in the ſpring. Pick them; that is to ſay, pick out the green and the yellow, which are at the bottom of the petal of the flower. Next to this, pound them in a marble mortar, with a little lukewarm water, impregnated with alum. When pounded, expreſs the juice through a new cloth, over a china bowl. Then mix ſome gum-arabic water with it.

2. If you want a tone of colour different from the natural colour of the flower, you may change it by only adding, after the flowers are pounded, a little quick-lime duſt in the mortar, and give two or three ſtrokes of a peſtle more to the whole; then ſtrain it.

3. *Note.* If you ſhould pound theſe flowers in a wooden mortar, you muſt be cautioned at leaſt to take care it ſhould not be one of walnut-tree wood, becauſe it is apt to tarniſh the colours, and deſtroy their brightneſs, which is one of the chief things always required in colours.

4. In the month of March, you may, by means of the ſame proceſs, obtain the colour from garden, or double violets. But this is never ſo fine nor ſo lively.

XXXIX. *To make a dark green, whether for the grounds of miniature pictures, or for waſhing on paper, or, in ſhort, for draperies and terraces.*

Take, towards the end of autumn, a good quantity of wallwort's ſtalks, with their fruits on them, and very ripe. Let them rot for five or ſix days, in the cellar; and, when you ſee the fruits have fomented ſufficiently to give eaſily their juice by expreſſion, ſtrain it through a new cloth in alum-water. Divide the whole into ſeveral glaſs tumblers to dry it more eaſily. Set them in the air, but not in the ſun, and lay ſome paper over them to prevent any thing from falling into the glaſſes, but which ſhould not at the ſame time ſtop the exhalation of the liquor, and thereby cauſe it to become mouldy. By theſe means, you ſhall have a colour fit for the waſh of a green hue, and dark at the ſame time.

XL. *To make the Biſtre, for the waſh.*

1. Grind, on marble, with child's water, ſome chimney-ſoot. Mullar it thus ſo long as to bring it to be as fine as poſſible. When done, put it in a wide-mouthed bottle, which fill up with clear water; and, then, ſtir and mix all well with a wooden ſpatula. Let the coarſeſt parts ſettle for about half an hour's time, and fall to the bottom of the veſſel. Decant out now the liquor gently into another veſſel. What remains in the bottom of the firſt bottle, is the coarſeſt biſtre.

2. Proceed the ſame with reſpect to the ſecond bottle,

tle, and after having left this to ſettle for three or four days, inſtead of half an hour, decant it into a third. This gives you the fineſt biſtre.

3. It is thus you are to proceed in the manipulation of all the colours which are intended to ſerve in drawing for waſh whenever you will not have them riſe thick above the ſurface of the paper, which would undoubtedly look very bad; for, the neatneſs required in a draught, forbids the uſe of any coarſe colour.

XLI. *The ſecret for a fine Red for the waſh.*

1. Make a ſubtile powder with any quantity of cochineal. Put it in a veſſel, and pour ſo much roſe-water over it as will exceed above it by two fingers.

2. Dilute calcined and pulveriſed alum, while it is yet quite warm, into plantain-water, and mix ſome of the liquor in which you have diſſolved the cochineal.

3. This proceſs will give you a very fine red, much preferable for the waſh, to that which is made with vermilion, becauſe this laſt has too much conſiſtence, and, beſides tarniſhes too ſoon, on account of the mercury which enters into its compoſition.

XLII. *A ſecret to make Carmine, at a ſmall expence.*

Break and bruiſe, in a bell-metal mortar, half-a-pound of gold colour Fernambourg-Braſil. Put this to infuſe with diſtilled vinegar in a glazed pipkin, in which you boil it for the ſpace of a quarter of an hour. Strain the liquor through a new and ſtrong cloth: then ſet it again on the fire to boil. When it boils, pour on it white-wine vinegar, impregnated with Roman alum. Stir well with a wooden ſpatula, and the froth that will ariſe is the Carmine. Skim it carefully in a glaſs veſſel, and ſet it to dry.

§ V. *Compoſition of colours, to dye ſkins or gloves.*

XLIII. *A lively Iſabel.*

To make a lively Iſabel colour, you muſt, to a quantity of white, add one half of yellow, and two thirds of red and yellow.

XLIV. *For the ſame, paler.*

If to a quantity of white, you put only one half of yellow, and another half of red, you ſhall have an Iſabel of a paler hue than the firſt.

XLV. *For a pale filbert colour.*

1. Take burnt umber; a little yellow, very little white, and ſtill leſs red.

2. This is made darker, only by adding to it a quantity of burnt umber as much yellow; a little white, and as much red.

3. Its darkneſs is ſtill increaſed, if, putting no white at all to the umber you add only ſome black chalk, a little yellow, and as much red.

XLVI. *For an amber colour.*

To make an amber colour; to much yellow, you add very little white, and no more red than white.

XLVII. *For the gold colour.*

To much yellow, join a little more red; and this mixture will give you a very fine bright gold colour.

XLVIII. *For the fleſh colour.*

To imitate well the complexion, or fleſh colour, you mix a little white and yellow together, then add a little more red than yellow.

XLIX. *The ſtraw colour.*

Much yellow; very little white; as little red, and a great deal of gum.

L. *A fine brown.*

1. Burnt umber; much black chalk; a little black, and a little red, will make a fine brown, when well incorporated together.

2. The ſame is made paler, by decreaſing the quantity of black chalk, and no black at all in the above compoſition.

LI. *To make a fine muſk colour.*

Take burnt umber; very little black chalk; little red and little white. Theſe ingredients well mixed will produce as fine a muſk colour as ever was.

LII. *To make a Frangipane colour.*

1. This is made with a little umber; twice as much red, and three times as much yellow.

2. The paler hue of it is obtained by adding only ſome white, and making the quantity of red equal to that of yellow.

LIII. *An Olive colour.*

To make the olive colour, take umber, not burnt; a little yellow; and the quarter part of it of red and yellow.

LIV. *For the Wainſcot colour.*

Much yellow; little white; little umber; and of red half the quantity of yellow.

LV. *How to make Skins and Gloves take theſe Dyes.*

Grind the colours you have pitched upon with perfumed oil of jeſſamine, or orange flowers. Then range the grinded colour on a corner of the marble ſtone. Grind, of gum-adragant, an equal quantity as that of the colours, ſoaking it all the while with orange flower water. Then grind both the gum and the colour together, in order to incorporate them well.—Put all into a pan, and pour a diſcretionable quantity of water over it, to dilute ſufficiently your paſte. Then with a bruſh, rub your gloves or ſkins over with this tinged liquor, and hang them in the air to dry. When dry, rub them with a ſtick. Give them again, with the ſame bruſh, another ſimilar coat of the ſame dye, and hang them again to dry. When dry for this ſecond time, you may dreſs them, the colour is ſufficiently fixed, and there is no fear of its ever coming off.

LVI. *To varniſh a Chimney.*

Blacken it firſt with black and ſize. When this coat is dry, lay another of white lead over it, diluted in mere ſized water. This being dry alſo, have verdigriſe diluted and grinded with oil of nuts and a coarſe varniſh, and paſs another coat of this over the white.

§ VI. *To colour, or varniſh, Copperplate-prints.*

LVII. *To varniſh Copperplate-Prints.*

1. Have a frame made preciſely to the ſize of your print. Fix it with common flour-paſte, by the white margin on that frame. Let it dry, then lay the following tranſparent varniſh on it, which is to be made without fire.

2. Dilute in a new glazed pipkin, with a ſoft bruſh, as big as your thumb, about a quarter of a pound of Venice turpentine, and twopenny worth of ſpike, and

as much turpentine, oils, and half a gill, or thereabouts, of ſpirit of wine.—This varniſh being no thicker than the white of an egg, lay with your bruſh, a coat of it on the wrong ſide of the print; and, immediately, another on the right. Then ſet it to dry, not upright, but flat. And, if it ſhould not dry quick enough, paſs a light coat of ſpirit of wine on the whole.

LVIII. *How to colour theſe prints, in immitation of Pictures in oil colours.*

1. To paint theſe prints, you muſt work them on the back in the following manner. Prepare firſt, your colours on a pallet, and then proceed thus:

2. The fleſh-colour is made with a little white and vermilion, which mix with your pencil according to the degree of redneſs you will have it.—For the green of tree-leaves, you muſt have mountain-green, ready prepared from the colourman; and, for the fineſt green, ſome verdigriſe: As for the lighter ſhades of theſe colours, you only add ſome yellow to either of the above two, more or leſs, according to the circumſtances.—To paint woods and trunks of trees, nothing more is required than umber.—To expreſs ſky-colours and clouds, you mix ſome blue ceruſe with white lead; and, with theſe two colours only, you alter your blues to various degrees of ſhades, dimimiſhing or augmenting one of the two, according to the darkneſs or lightneſs of the ſkies which you want to expreſs. For the diſtances, a mixture of yellow and white lead; &c. and ſo on for the other colours you may want.

3. You are to compoſe them yourſelf on the pallet with the pencil; and, to mix or unite them, uſe a little oil of nuts, which you take up with the point of the pallet-knife. Then with the pencil, you apply them on the wrong ſide of the print.

LIX. *A varniſh which ſuits all ſorts of Prints, and may be applied on the right ſide of it.—It ſuits alſo pictures and painted wood.—It ſtands water, and makes the work appear as ſhining as glaſs.*

Dilute one quarter of a pound of Venice turpentine, with a gill, or thereabouts, of ſpirit of wine. If too thick, add a little more of this laſt; if not enough, a little of the former, ſo that you bring it to have no more thickneſs than the apparent one of milk. Lay one coat of this on the right ſide of the print, and, when dry, it will ſhine like glaſs. If it be not to your liking, you need only lay another coat on it.

LX. *To make appear in gold, the figures of a Print.*

1. After having laid on both ſides of the print, one coat of the varniſh deſcribed in the above *Art.* lvii. in order to make it tranſparent, let it dry a little while. Then before it is quite ſo, lay ſome gold in leaves on the wrong ſide of the print, preſſing gently on it with the cotton you hold in your hand. By theſe means all the parts, whereon you ſhall lay theſe gold leaves, will appear like true maſſive gold on the right ſide.

2. Now when this is all thoroughly dry, you have only to lay on the right ſide of it, one coat of the varniſh deſcribed in the preceding *Art.* lix. it will then be as good as any crown-glaſs. You may alſo put a paſteboard behind the print, to ſupport it the better in its frame.

LXI. *A curious ſecret to make a print imitate the painting on glaſs.*

Chuſe a crown-glaſs of the ſize of your print; and lay on it two coats of the following varniſh.

1. Put on the fire, in a glazed pipkin, and let boil for the ſpace of one hour, Venice turpentine, four ounces; ſpirit of the ſame, and of wine, equal parts, one ounce and a half of each; maſtich in tears, two drachms.

2. After it has boiled the preſcribed time, let it cool, and then lay the firſt coat on the glaſs; this being dry, lay another; and, as ſoon as this is nearly dry, then lay on it, as neatly as poſſible, the print, previouſly prepared as follows.

3. Have a glazed veſſel ſo broad at bottom as to admit of the print flat with all eaſe in its full ſize. Let this veſſel be alſo as wide at top as it is at bottom, that you may get the print in and out of it on its flat, without bending it in the leaſt. Pour *aquafortis* in this pan or veſſel, enough to cover all the bottom, then lay the engraved ſide of your print on that *aquafortis*. Take it

out, and wipe the *aquafortis* off gently with ſoft rags, then ſteep it two or three times in three different clean freſh waters, and wipe it each time in the ſame manner.

4. This being done, lay the right ſide on the before-mentioned glaſs, before the ſecond coat of varniſh be quite dry, and while it is ſtill moiſt enough for the print to ſtick upon it uniformly, equally, and ſmoothly, without making any wrinkles or bladders. When it is perfectly dried in that ſituation, wet your finger in common water, and moiſtening the print on the back part in all the white places, which have received no impreſſion from the engraving of the plate, rub it all off. By theſe means, there will remain nothing but fairly the printed parts. On them you may paint in oil with a bruſh, and the moſt bright and lively colours; and you will have pictures, on which neither duſt nor any thing elſe will be able to cauſe any damage.—To do this, there is no need of knowing, either how to paint or draw.

LXII. *Another to the ſame purpoſe.*

1. Heat before the fire, a crown glaſs of the ſize of the print, and then rub it over with Venice turpentine, which, on account of the heat of the glaſs, will ſpread the more eaſily.

2. Boil next your intended print, in ſpirit of wine, for about half a quarter of an hour; and then lay it by the right ſide on the glaſs.

3. This glaſs being cold, wet your finger, and moiſtening the back of the print, ſcrape, with your nail, the paper off the glaſs, ſo that there remain nothing but the ſtrokes of the engraving.

4. Boil, in a matraſs, for about a quarter of an hour, or rather more, and in *balneo mariæ*, one part of turpentine with four of ſpirit of wine. Then lay two coats of this compoſition on the back of the print, after you have ſcratched off all the paper, and allowing time between each coat to dry.

5. As ſoon as the ſecond coat is dry you may lay on water-colours on the print, according to taſte and judgement, and you will have a choice of beautiful pictures, agreeable to the beauty of the prints uſed.

LXIII. *The method of chalking, for thoſe who are not acquainted with drawing.*

They who are not acquainted with the principles of drawing, may amuſe themſelves with chalking ſome beautiful prints, on white paper, where they ſhall have nothing more to do afterwards than ſhade, in the ſame manner as they ſee done in the original. When they ſhall have practiſed for a while in that way, they will ſoon become able to ſtrike out themſelves ſome good piece of deſign. And to obtain that point, the following method is recommended.

1. With a ſoft, and one of the beſt, black lead pencils, rub one ſide of a white ſheet of paper, cut to the ſize of the print, ſo that nothing of the paper can be ſeen, and only the black lead colour.—Lay this ſheet, on the clean ſide, upon the face of the print, that it may not ſoil it; and on this ſheet, the black ſide of which now lies uppermoſt towards you, lay another ſheet of clean paper, and fix theſe three ſheets together by the four corners, and on the edges, with fine minikin pins, ſo that the ſheets may not vary one from another, which would quite confuſe and mar the whole deſign.

2. Now take a blunted needle, or ivory point, and ſlip it, in preſſing gently, all over the turns of the prints, going gradually and orderly for fear of forgetting ſome places, which may be prevented by laying a flat ruler acroſs the print under your hands. When the whole is finiſhed, unpin the papers; and, on the under part of that which lays at top, you will find all the outlines of the print moſt exactly drawn.

3. You may now, on theſe outlines, paſs a ſtroke with India ink and a bruſh, or with ink and a pen; after which, with a crum of ſtale-bread, you rub off clean all the uſeleſs marks of the pencil, and leave none but thoſe marked with ink. And to ſhade this deſign, you waſh it with India ink, or colours, and a bruſh.

LXIV. *How to prepare a tranſparent paper to chalk with.*

In order to render themſelves ſooner, and more eaſily, maſters of chalking neatly, and not to go out of the fine turns and outlines of a drawing, beginners ſhould firſt know how to prepare a tranſparent paper, which, as it lets them ſee the minuteſt parts of the ſtrokes as through a glaſs, gives them of courſe an opportunity of acquiring, by practice, a correctneſs, preciſion, and truth, in the expreſſion of all the turns of a piece of drawing, be it whatever it will. This preparation then is as follows.

1. Have, one or ſeveral, ſheets of fine and very thin paper, and rub them over with oil, or ſpirit, of turpentine, mixed in double the quantity of oil of nuts. To cauſe the paper to imbibe that mixture, ſteep a ſponge or feather in it, which paſs on both ſides of the paper, and then let it dry.

2. When you want to uſe it, lay it on a print. Then, with a bruſh, a pencil, or a pen, paſs over all the ſtrokes, lines, and turns, of the deſign laid under. You may even thus learn to ſhade with neatneſs, if you waſh that ſame deſign, while fixed on the original print, with India ink.

Thus practiſing often, and for a certain while, you may learn to draw very neatly, and even with boldneſs, provided you apply with attention, and are bleſſed with ſome ſhare of memory. This method will certainly prove very agreeable, uſeful, and entertaining, for thoſe who have not the patience to learn by the common method, which ſeems too tedious to ſome, and generally diſguſts beginners.

* LXV. *Another, and more ſpeedy method of making a tranſparent paper, to be uſed inſtantly.*

The above receipt for making tranſparent paper for drawing being attended with ſome difficulty, *viz.* the length of time which it takes to dry, we thought it would not be unacceptable to the public to be appriſed of another, more ſpeedy, and no way inferior to the other, by means of which, in a hurry, it may be made and uſed directly, as in a caſe, for example, where any one, being glad of copying a deſign, had not at hand varniſhed, or tranſparent, paper.

With a ſponge, rag, feather, or any thing, ſpread lintſeed oil on both ſides of any common thin ſheet of paper; then, as ſoon as done, wipe it with a handful of the ſoft rags which are ſcraped off from leather at the tanner's. The paper is inſtantly dry and fit for immediate uſe.

Note. Nothing elſe can ſupply the tanner's leather rags, as nothing could ſoak the ſuperfluous oil from the paper ſo faſt, and ſo thoroughly. It is that which dries it ſo quick, and makes it fit for inſtant uſe.

LXVI. *A varniſh to render tranſparent the impreſſion of a print which has been glued on glaſs, and the paper ſcratched off as mentioned in* Art. lxi. *and* lxii.

Take turpentine, and a very little oil of the ſame. Dilute all well together, and lay one coat of it on the ſtrokes of engraving, which are left fixed on the glaſs.

§ VII. *For painting on glaſs.*

LXVII. *How to draw on glaſs.*

Grind lamp-black with gum-water and ſome common ſalt. With this and a pen, a hair pencil, or any thing you pleaſe, draw your deſign on the glaſs; and afterwards ſhade and paint it with any of the following compoſitions.

LXVIII. *A colour for grounds on glaſs.*

1. Take iron filings, and Dutch yellow beads, equal parts. If you want it to have a little red caſt, add a little copper's filings. With a ſteel mullar, grind all theſe together on a thick and ſtrong copperplate, or on porphyry. Then add a little gum-arabic, borax, common ſalt and clear water. Mix theſe a little fluid, and put the compoſition in a phial for uſe.

2. When you come to make uſe of it, you have nothing to do but with a hair pencil lay it quite flat on the deſign you ſhall have drawn the day before; and having left this to dry alſo for another day, with the quill of a turkey, the nib of which ſhall not be ſplit, you heighten the lights in the ſame manner as you do with crayons on blue paper. Whenever you put more coats of the above compoſition one upon another, the ſhade, you muſt be ſenſible, will naturally be ſtronger. And when this is finiſhed you lay your colours for garments and complexions as follows.

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LXIX. *Preparation of lake, for glaſs.*

Grind the lake with a water impregnated with gum and ſalt; and then make uſe of it with the bruſh.—The ſhading is operated by laying a double, treble, or more coats of the colour, where you want it darker. And ſo it is of all the following compoſitions of colours.

LXX. *Preparation of the blue purple, for glaſs.*

Make a compound of lake and indigo, grinded together with gum and ſalt water; and uſe it as directed in the preceding article.

LXXI. *Preparation of the green, for glaſs.*

Indigo mixed with a proportionable quantity of gamboge, and grinded together as above, will anſwer the intended purpoſe.

LXXII. *Preparation of the yellow for the ſame.*

Gamboge grinded with ſalt water only.

LXXIII. *Preparation of the white.*

You have only to heighten much the white parts with a pen.

LXXIV. *The proper varniſh to be laid on glaſs after painting.*

Boil, in oil of nuts, ſome litharge, lead filings, and white copperas calcined. When done and cold, lay it all over the colours which you put on the glaſs.

LXXV. *How to paint on glaſs without fire.*

Take gum arabic and diſſolve it in water with common ſalt, bottle, and keep it. With this liquor, if you grind the colours you intend to paint with, they will fix and eat in the glaſs. Should you find they do not enough, increaſe only the doſe of ſalt.

§ VIII. *Preparations of colours of all ſorts for oil, water, and crayons.*

LXXVI. *An oil to grind colours with, when the works are much expoſed to the injuries of the weather.*

Take two ounces of maſtich in drops, very clear, and grind it with lintſeed oil. Then put in a well-glazed pipkin any quantity of that oil, and ſet it on the fire to boil. By little and little introduce in that boiling oil the above prepared maſtich, ſtirring well the whole to mix and incorporate it better. When done, take it off from the fire, and let it cool.—Such is the preparation of oil with which you are to grind your colours, when they are to be much expoſed to the injuries of the weather, for they will reſiſt it.

LXXVII. *To marble and jaſper paper.*

1. Grind all the colours you want to employ (ſuch as lake, maſſicot, indigo, yellow and red ocher, *etc. etc.*) with bullock's gall; grind each ſeparately, and keep them ſo. Then have a large and wide pan filled with lukewarm gum-water. Stir well that water with a ſtick. While it is thus in great motion, and your colours being ready under your hand, with a large bruſh take of each ſeparately, as much as the tip of the bruſh will carry, and touch only the ſurface of the water with it. The colours will immediately expand. Each colour requires a particular bruſh to itſelf. Therefore, with another bruſh, take of another colour, and do the ſame; and, with another, of another, and ſo on, till you have put on your water all thoſe you have deſtined for the purpoſe.

2. When the water ceaſes to turn, you will plainly perceive all the variety occaſioned by the different colours. Then, taking your ſheet of paper, lay it flat on the water, leave it there for about two or three minutes, and, without taking it out, give it one turn round on the water, then pull it by one of the edges to the ſide of the pan, waſh it, dry it, and burniſh it afterwards.

Note. The paper muſt be choſen good, and the water ſized with gum-adragant.

LXXVIII. *To clean pictures.*

Take the picture out of its gilt frame. Lay a clean towel on it, which, for the ſpace of ten, fourteen, ſixteen, or eighteen days, according as you find it neceſſary, you keep continually wetting, till it has entirely drawn out all the filthineſs from the picture. Then, with the tip of your finger, paſs ſome lintſeed oil which has been ſet a long while in the ſun to purify it, and the picture will become as fine as new.

LXXIX. *Another for the ſame purpoſe.*

Put into two quarts of the oldeſt lye one quarter of a pound of Genoa ſoap, raſped very fine, with about a pint of ſpirit of wine, and boil all together on the fire. Strain it through a cloth, and let it cool. Then with a bruſh, dipped in that compoſition, rub the picture all over, and let it dry. Do the ſame again once more, and let it dry too. When dry, dip a little cotton in oil of nut, and paſs it over all the picture. Let this dry again; and, afterwards, warm a cloth, with which rub the picture well over, and it will be as fine as juſt out of the painter's hands.

LXXX. *A ſecret to render old pictures as fine as new.*

Boil in a new pipkin, for the ſpace of a quarter of an hour, one quarter of a pound of grey or Bril-aſh, and a little Genoa ſoap. Let it cool, ſo as to be only lukewarm, and waſh your picture with it, then wipe it. Paſs ſome olive oil on it, and then wipe it off again. This will make it juſt as fine as new.

LXXXI. *An oil to prevent pictures from blackening.—It may ſerve alſo to make cloth to carry in the pocket, againſt wet weather.*

Put ſome nut, or lintſeed oil, in a phial, and ſet in the ſun to purify it. When it has depoſited its dregs at the bottom, decant it gently into another clean phial, and ſet it again in the ſun as before. Continue ſo doing, till it drops no more *fæces* at all. And with that oil, you will make the above-deſcribed compoſitions.

LXXXII. *A waſh to clean pictures.*

Make a lye with clear water and wood aſhes; in this dip a ſponge, and rub the picture over, and it will cleanſe it perfectly.—The ſame may be done with chamber-lye only; or otherwiſe, with white wine, and it will have the ſame effect.

LXXXIII. *Another way.*

Put filings in an handkerchief, and rub the picture with it. Then paſs a coat of gum-arabic water on the picture.

LXXXIV. *Another way.*

Beat the white of an egg in chamber-lye, and rub the picture with it.

LXXXV. *A very curious and ſimple way of preventing flies from ſitting on pictures, or any other furniture, and making their dung there.*

Let a large bunch of leeks ſoak for five or ſix days in a pailful of water, and waſh your picture, or any other piece of furniture, with it. The flies will never come near any thing ſo waſhed. This ſecret is very important and well experienced.

LXXXVI. *To make indigo.*

Put ſome *iſatis*, otherwiſe woad, or *glaſtum*, with ſlacked lime, to boil together in water. There will riſe a ſcum, which being taken off, and mixed with a little ſtarch, makes the indigo.

LXXXVII. *To make a yellow.*

What the *luteola* dyes yellow, becomes green by the woad, or *glaſtum*. Whence we may juſtly conclude, that green is not a ſimple colour, but a mixture of blue and yellow; as the yellow itſelf is a compound of red and white.

LXXXVIII. *An azure of mother-of-pearl.*

Take any quantity of ſuperfine teſted ſilver in laminas. Put it a little while in vinegar; then, taking it out of it, ſtrew over the laminas ſome pounce-powder to alcoholiſe them. Next ſtratify them in a crucible; and when red hot, take them off from the fire, and you will have a fine azure.

LXXXIX. *A white for painters, which may be preſerved for ever.*

Put into a large pan three quarts of lintſeed oil, with an equal quantity of brandy, and four of the beſt double diſtilled vinegar; three dozen of eggs, new laid and whole; three or four pounds of mutton ſuet, chopped ſmall.—Cover all with a lead plate, and lute it well. Lay this pan in the cellar for three weeks, then take ſkilfully the white off, then dry it. The doſe of the compoſition for uſe is ſix ounces of that white to every one of biſmuth.

XC. *Another white for ladies' paint.*

The pomatum which ladies make uſe of for painting is made as follows.—To four parts of hog's-lard add one of a kid. Melt them both together, then waſh them. Re-melt and waſh them again. Then add four ounces of ammoniac ſalt, and as much of ſulphur, in ſubtile powder. This white will keep as long as that mentioned in the preceding receipt.

XCI. *A good azure.*

Take two ounces of quickſilver; ſulphur and ammoniac ſalt, of each one ounce. Grind all together, and put it to digeſt in a matraſs over a ſlow heat. Increaſe the fire a little; and, when you ſee an azured fume ariſing, take the matraſs off from the fire. When cool, you will find in the matraſs as beautiful an azure as the very ultramarine itſelf.

XCII. *An azure from ſilver, done in leſs than a fortnight.*

Diſſolve in very ſtrong vinegar, as much gem-ſalt and roch-alum, as it will be able to diſſolve. Put this in a new pipkin; and, over it, hang up laminas of the fineſt teſted ſilver. Cover the pot, and lute it well. Bury it in the cellar; and ten or fifteen days afterwards take off the azure, which you will find about the laminas. Replace things as before; and, ten days afterwards, the ſame again; and repeat this proceſs as many times as you can get any azure by it.

The ſilver laminas may ſteep in the vinegar if you think proper.

Beſides gem-ſalt, and roch-alum, ſome likewiſe diſſolve alkali in the vinegar.

XCIII. *To make an azured water.*

1. Gather wallwort's grains between green and ripe, and bake or ſtew them in a pan. When they have boiled a conſiderable time, ſtrain them through a cloth, and keep the juice in a glaſs phial; its colour will never change, and will keep for ever very fine.

2. Have next dog's dung very dry. Pulveriſe it very fine, and ſift it through a ſilk ſieve. Then grind it on a marble with the wallwort's juice, and a mullar, as painters do their colours, and you will find this paſte of a very fine azure colour.

3. Now, if you tinge any water with this, by putting it in a phial to ſoak, you may dye whatever you will with it, ſuch as thread, cotton, cloth, &c.

XCIV. *Another way of making azure.*

Take the bulk of a filbert of ammoniac ſalt, which you diſſolve in a common half-pint glaſs tumbler of water. Then pound and ſift, all together, one ounce of vitriol, and one and a half of quick lime. Put this powder into the water in which the ammoniac ſalt was diſſolved. Leave this to infuſe for the ſpace of forty-eight hours, and at the end of that term the azure ſhall be done.

XCV. *A fine azure.*

Make an incorporation of three ounces of verdigriſe, and of an equal quantity of ammoniac ſalt which you dilute with a little tartar-water, ſo as to make a thick paſte of it. Put this compoſition into a glaſs, and let it reſt for a few days, and you will have a fine azure.

XCVI. *Another way.*

Pulveriſe and mix well together one part of ammoniac ſalt, and two of verdigriſe, with a little ceruſe. Then pour over it oil of tartar enough to make a clear paſte of it. Put this in a glaſs veſſel, which take care to ſtop and lute well. When done, put it in an oven along with the bread, and take it out with it alſo, then the azure will be done.

XCVII. *Another way.*

Take ſublimed mercury, four parts; ammoniac ſalt, two; ſulphur-*vivum*, one. Pulveriſe the whole, and put the powder in a matraſs, which lute well with the lute of ſapience. Put this matraſs on a mild and ſlow fire; and, when you ſee a white fume beginning to riſe, ſtop the fire. When the matraſs is cold, break it, and you will find a very fine azure at the bottom. Now take it and work it with lukewarm water firſt, and then with cold.

Note. There are ſome who abſurdly waſh it with lye, or a ſtrong lime-water; but they moſt undoubtedly ſpoil their azure entirely.—What is moſt adviſable, and indeed the only preparation allowable, is to boil a little white honey in the water, and ſkim it; and when that water becomes lukewarm, waſh the azure with it. This laſt may contribute to give it a fine colour, but the other will certainly hurt it.

XCVIII. *To make an admirable white lead, fit for oil painting and colouring of prints.*

Grind the fineſt white lead in flake you can find, on the ſtone with vinegar. It will immediately turn black. Waſh it well in a panful of water, and let it ſettle. Pour the water off by inclination, and grind it again with freſh vinegar, then waſh it a-new. Repeat this operation four or five times, and you will get a moſt beautiful white.

XCIX. *The preparation of verdigriſe.*

Grind the verdigriſe with vinegar, and put it in a piece of brown bread dough. Bake it as you would bread; and, when done, cut it open and take it out. You will then have a very fine verdigriſe, fit to work with, either in oil or water, as you like.

C. *A fine liquid green.*

Mix well together, one pound of Montpelier verdigriſe, and half a pound of white tartar from the ſame place. Put this a-ſoaking for twelve hours in two quarts of the ſtrongeſt vinegar, then reduce it by boiling to one half. Let it reſt for two days, and filter it afterwards in a bottle, wherein you will keep it for uſe.

CI. *To make the* Stil-de-grain, *which we call* Brown pink.

Bruiſe and boil in three quarts of water four ounces of French berries, to the reduction of one half. Strain all through a cloth, and put in this juice a diſcretionable quantity of whitening, pounded and ſifted into a ſubtile powder, ſo as to make a thick paſte, which you put into ſmall tied bags, & ſet to dry on tiles. When dry, it is uſed with gum. And to render it finer, you may put ſome gamboge.

CII. *To make a fine vermilion.*

Make a mixture of cochineal powder and burnt alum. Stifle it quite hot in roſe or plaintain water. It will give you the fineſt vermilion in the world.

CIII. *A ſecret to draw without either ink or pencil.*

Rub a ſheet of paper with tripoly. Then, with any blunt point, form your drawing on it. Whatever you trace will be viſible.

CIV. *To make an imitation of enamel on tin, for chimney-branches*, &c.

Get a ſheet of block-tin very clean, and cut it in the form, ſhape, and figure, you chuſe to make your flowers and other things. Grind what colours you propoſe to make uſe of, with clean water, and each ſeparately, then let them dry. When you want to employ them, dilute them, each apart, with liquid varniſh, and lay them on with the bruſh. Set the work in the open air for fear the colours ſhould run, and when they are a little thickened and conſolidated, finiſh drying them before a gentle fire.

CV. *A very valuable ſecret to make exceeding good crayons, as hard as red chalk. This ſecret is of the diſcovery of Prince* Robert, *brother to prince* Palatin.

Grind, on the ſtone, ſome tobacco pipe clay, with common water, ſo as to make a paſte of it. Then take ſeparately each colour, and grind them, when dry, on the ſtone, ſo fine as to ſift them through a ſilk ſieve. Mix, of each of the colours, with your firſt white paſte, as much as will make it of a higher or paler hue, and emſbody the whole with a little common honey and gum-arabic water.

Note. You muſt be attentive to make crayons of various degrees of hues in each colour, for the *chiaros* and *oſcures*, or lights and ſhades. Then you roll each crayon between two boards very clean, and ſet them to dry on a ſheet of paper for two days in the ſhade. To complete their drying lay them before the fire, or in the ſun: and then you may uſe them with ſatisfaction. It is, it muſt be confeſſed, a very valuable compoſition.

CVI. *To render the ſtone-cinnabar and vermilion finer; and, at the ſame time, to prevent them from blackening.*

1. You raiſe the hue of the ſtone-vermilion, if, in grinding it, you add gamboge water, tinged with a little ſaffron. This preparation extends only to the red.

2. With reſpect to the orange colour you muſt add ſome minium to it.

3. For the yellow, put a diſcretionable quantity of

orpine in cakes, prepared as follows.—Take the fineſt orpine you can find, and grind it well with water. Make it in little cakes, and ſet it to dry on paper, as you do with every other ſort of colour. When dry, pulveriſe and uſe it.

4. For the *gridelin*, take French ſorrel and boil it by itſelf in water, to draw as ſtrong a tincture from it as you poſſibly can. Then have white lead, (dried in cakes, and prepared after the method above mentioned for the orpine), and grind it a-new with this ſorrel tincture, then dry it. Grind and dry it again, and repeat this operation with the ſorrel tincture, till you have obtained the deſired point of colour.

CVII. *The true proceſs uſed in the compoſition of the Eaſtern carmine.*

1. Have a glazed pipkin, quite new, holding fully two Engliſh quarts. Waſh it with boiling water, then fill it with ſpring or river water, very clean and filtered. Set it on blaſting coals, and when it begins to boil throw in a drachm of *chouan* in fine powder, which you boil very quick for near a quarter of an hour. Then ſtrain this water through a cloth waſhed in lye, and not with any ſoap, and receive it in another new glazed pipkin, cleaned and waſhed as the firſt. Put this on a fire, not quite ſo blaſting as the firſt; and, when it begins to give ſigns of boiling, throw in one ounce of the fineſt cochineal, pulveriſed very fine. Stir often with a little hazel-tree ſtick, ſtripped of its peal, and let boil gently for near a quarter of an hour; then throw in ſixty grains of *autour*, in ſubtile powder, and keep it on the ſame degree of fire, boiling for half a quarter of an hour. Take it off from the fire, and throw in ſixteen grains of Roman alum in powder, then ſtrain it immediately through a clean cloth, waſhed with lye, and no ſoap, and receive it in two different large china bowls, capable to contain more than three pints of liquor apiece, new and perfectly clean. Place theſe in a room, where they will be perfectly free from duſt, and let them reſt there for a week, that the carmine may have time to make a precipitation.

2. At the end of this term, decant out gently your

tincture into two other China bowls, of the ſame ſize as the two former, & as perfectly clean, taking great care in decanting, to do it ſo gently that the liquor may not carry the carmine along with it. Then letting dry in a ſhade the carmine, which ſhall have been left in the bottom of your bowls, gather it with a little bruſh, and keep it very cleanly.

3. Eight or ten days afterwards, more or leſs, decant again the tincture which is in the ſecond bowls, into a new varniſhed pipkin, then dry and gather the carmine, which is at the bottom, in the ſame manner as the firſt.

4. Then ſet the pipkin, in which the carmine has been decanted for this ſecond time, on the fire, and vaporiſe the liquor gently, till the ground remains in the conſiſtence of a pap. This pap-like ground muſt then be put into ſeveral ſmall china cups, and place in the ſun to dry, which will procure you again another carmine darker, and much leſs valuable than the firſt. Should there happen any moiſtneſs on your laſt cups, take it off immediately, but gently, and with a great deal of care.

5. In order to take the water off from your china bowls, you might make uſe of another method, *viz.* a very fine and clean ſponge, in the following manner. Dip your ſponge into very clear and pure water, and there work it well with your hand, ſoaking and preſſing it alternately till you have rendered it very ſoft. Then preſs and ſqueeze it quite dry in a clean towel. Now, if you only approach it to the ſuperfice of the tinctured water, it will immediately fill itſelf with it, and you may ſqueeze it into another empty bowl, thus repeating the ſame proceſs, till you have got it all out of the firſt bowls; taking care every time you approach it to the ſurface of the water, leſt it ſhould touch the carmine; for no doubt but it would carry ſome along with the water.

6. If you diſſolve one drachm of mineral cryſtal into this tincture, by boiling it to that effect for five or ſix minutes, it will help a great deal the precipitation of the colour, from which you take out afterwards the water with a ſponge, as we ſaid before. Should the water you have thus drawn out be ſtill tinged, you may add ſome

more mineral cryſtal to it again; boil it as before, ſtrain it through a cloth, and let it ſettle. By theſe means you will have very fine crimſon carmine.

CVIII. *The proceſs obſerved in making the lake.*

1. Take one pound of Alicant kali, or Bril-aſh, pulveriſed, which put in a kettle with four quarts of ſpring water. Boil the whole for the ſpace of a quarter of an hour, keeping ſtirring all the while with a ſtick, then take it off from the fire, and let it cool, ſo as to be able to keep your finger in it without ſcalding. When it is in that ſtate, throw it in a jelly-bag, made of cloth, to filter it, and render it perfectly clear. Put it, next, in a new glazed pipkin, with one ounce of finely pulveriſed cochineal, previouſly diluted by degrees with ſome of the ſame lye. Set it a-boiling for half a quarter of an hour, and never ceaſe to ſtir with a ſtick all the while it is on the fire.—You may, if you chuſe, add one drachm of *terra merita* in fine powder, at the ſame time with that of the cochineal; it will render your lake the reder.—When the whole ſhall have boiled the preſcribed time of half a quarter of an hour, take it off the fire, and let the tincture cool, in order to paſs it through a cloth, or the above-mentioned jelly-bag. Set a large ſtone pan under the bag to receive the tincture which ſhall filter; and, when all is well drained, take the bag, turn it to throw off all the dregs, and waſh it well, inſide and outſide, in clear water, and wring it quite dry.

2. Now hang again this ſame bag at two feet diſtance, or thereabouts, above the pan wherein the tincture did run, and now is. Diſſolve, in about two quarts of warm ſpring water, ſix ounces of Roman alum well pounded, that it may more readily melt. When this diſſolution is no more than lukewarm, have ſomebody to pour it for you in the above jelly-bag, while you ſtir with a ſtick what runs from it into your tincture, and do ſo till the whole is paſſed through, and the tincture froths no more.—Then wring well your bag again, to expreſs all the alum's diſſolution from it into your tincture, and waſh it again afterwards in clear water, as before.

3. Have another ſtone pan like the firſt, hang your bag again over it, and pour all your tincture in it. If

it run clear like water, you may then let it go ſo ; if not, put it again in the bag over the other, and continue ſo to do till it abſolutely does run clear. If, however, after having repeated this three or four times, it ſhould continue to run tinged, diſſolve two or three ounces more of pulveriſed Roman alum in about two quarts of that very tinged water, then ſtir and mix it well in the whole quantity of tincture, then pour it again in the bag where the lake is, re-pouring again and again what ſhall run firſt from it, till it runs quite clear, and does not even ſtain the paper.

4. Then let well drain the lake which is in the bag ; and, with a box-ſpoon take it, and ſpread it on pieces of cloth, laid on plaiſtered ſtones, and let it dry in the ſhade where there is no duſt, or where, at leaſt, you may preſerve it from any.

CIX. *To make the fine columbine lake.*

1. Take half-a-pound of the fineſt Braſil wood you can find. Cut it in ſmall bits, and pound it in an iron mortar. Put this in a new and glazed pipkin ; pour over it two quarts of ſtrong wine vinegar. Let this infuſe without the aſſiſtance of any heat for three whole days. Boil it next for half an hour, then add one ounce of pulveriſed Roman alum, and boil it again for the ſpace of three quarters of an hour, that the alum may the more perfectly be diſſolved, and the ſtronger the colour.

2. Take the pot off from the fire ; and, raſping the ſofteſt partof a dozen of ſound or cuttle-fiſh bones, add this powder to it. Replace the pot on the fire, and ſtir the contents, with a bit of cane, till you ſee a froth riſing on the top of the compoſition ; when immediately taking the pot off from the fire again, you cover it with its lid, and let it ſtand for a week. During that ſpace of time you muſt, however, carefully ſtir this matter, with the cane above-mentioned, four times a-day.

3. Have next a glazed pan, which you fill with dry ſand as high as three fingers from the brim. In this ſand put your pot half-way in. Place all on a charcoal fire, till it nearly boils ; then, taking the pot off from the fire, run the liquor through a clean cloth. Put it in different retorts, and ſet them half-way in your ſand again, which,

by this time, ought to be quite cold. Replace all on the fire, as before, and keep it there till it begins to ſimmer; then, taking it off from the fire, let it cool, and the lake is done. But it muſt not be uſed till twelve days after, during which time let it reſt.

Note. When the tincture is in the retorts, you may, if you chuſe, put in each of them half a gill of lye, made with vine-branch aſhes.—When you put the powder of cuttle-fiſh bones in the tincture, you muſt take care it is warm.—The reſidue which is found at the bottom of the retorts ought not to be thrown away, as it is very good to paint in water colours.

CX. *A fine red water, for miniature-painting.*

1. Put, in a new glazed pipkin, one ounce of *Fernamburg Braſil* wood, finely raſped. Pour three pints of ſpring water on it, with ſix drachms of fine white iſinglaſs chopped very ſmall. Place the pot on warm aſhes, and keep it there for three days, during which you are to keep up the ſame degree of heat.

2. When the iſinglaſs is melted, add two ounces of kermes in grain, one of alum, and three drachms of borax, all of them well pounded into powder. Boil this gently to the reduction of one half; then ſtrain the liquor through a cloth, bottle and ſtop it well, and ſet it in the ſun for a week before uſing.

Note. This water may very properly be uſed as a waſh to give an agreeable bloom to pale faces.

CXI. *The receipt of the fine* Venetian *lake.*

1. Take one pound of good pearl aſhes. Put it in a large copper; then, pour over it ſix gallons of ſpring water. Should you not have any ſpring water, take river, but no pump water. Let the pearl aſhes ſoak thus twenty-four hours, after which, ſet the copper on the fire, and boil it for one quarter of an hour. Then filter this lye through a cloth jelly-bag, and receive the filtration in a ſtone pan.

2. If, at firſt, the lye did not run quite clear, filter it till it does; and then, changing the pan only underneath, pour what ran thick in the firſt pan in the bag again. When all is new filtered and clear, put it in the copper again, which muſt have been previouſly well

waſhed, and ſet it on the fire to boil. When it does boil, throw in two pounds of fine ſcarlet flocks, which you boil to whiteneſs. Then filter again this lye tinged with ſcarlet colour, in the before-mentioned jelly-bag; and preſs well the flocks, that there may not remain any colour in them.

Obſerve, that in order your bag may ſerve you both for the lake and tincture, without being at the trouble of cleanſing it, you muſt not filter through it the ſecond lye in which the ſcarlet is. For ſhould you pour this lye from the copper, directly into it, the ſcarlet flocks would undoubtedly run with the lye, which would give you an infinite deal of trouble to get out of the bag, after the filtering of the tincture. And the leaſt bit of it would entirely ſpoil the lake. Therefore, to avoid all theſe inconveniences, ſtrain your ſecond lye either thro' a cloth ſuſpended by its four corners, or through another bag by itſelf.

3. While the tincture is filtering, get the copper well ſcoured, cleaned, and wiped dry. Put the filtered tincture in it. Diſſolve, over the fire, and in a copper or glazed earthen ſauce-pan, half-a-pound of Roman alum in one quart of ſpring water. Then ſtrain it quickly, and, while warm, pour it in your tincture, keeping ſtirring all the while, and afterwards, till all the froth has quite ſubſided. Boil, next, all together for the ſpace of half a quarter of an hour. Then throw it in the ſame bag that filtered your firſt lye, and receive the filtration into a clean ſtone pan.

4. Beſides this; boil again, in another quart of ſpring water, half a pound of *Fernamburg Braſil* wood, cut and bruiſed in an iron mortar. Strain it through a cloth, and pour it, along with the above diſſolution of Roman alum, in the jelly-bag, and ſtir it to run all together.

5. After all is run out of the bag, throw in again half a pint of quite clear and pure ſpring water.

6. When nothing runs any more out of the bag, the lake is left in it. Take it out with a box ſpoon, as we ſaid in the preceding article, and ſpread it on plaiſter flat ſtones, three fingers thick, and about half a foot ſquare, co-

vered with white cloth of the ſame ſize. For ſhould there be no cloth on the plaiſter, the lake would ſtick to it.

Note. It often happens for the firſt water which runs out of the bag to be muddy, and to carry ſome lake along with it. But you muſt continue filtering till it comes bright and clear. Then, taking off the pan from underneath, and ſubſtituting another, you put that muddy liquor into the bag again.—Should, by chance, the filtration continue to run red, as it ſometimes happens, you muſt ſtill keep filtering the liquor through the bag, till it is clarified.

CXII. *Directions for colouring prints.*

1. All the colours which are uſed for colouring prints are grinded with gum-water; the calcined green only excepted, which grinds with vinegar.

2. The chief of theſe colous are, fine azure, vermilion, Venetian lake, fine verditure, white lead, calcined green, umber, Cologn earth, indigo, French berries' juice, yellow ocher, yellow maſſicot, white maſſicot, brown ocher, biſtre, or, prepared ſoot, lamp-black, and brown red.

3. For complections, you make a mixture of white and vermilion, more or leſs, according as you want the colour more or leſs bloody. For the lips, it is a mixture of lake and vermilion. And the ſhades are made with white and vermilion, and a great deal of umber.

4. For fair hair, you join a good deal of white with very little umber. If a carrotty colour, take yellow ocher and brown red; the ſhade with biſtre and lake mixed together. If light and like ſilver, you only mix ſome black and white and umber together.

5. Cloaths are made, if linen, with white lead and a little blue; if ſtuffs, with white lead alone, and the ſhades with a grey colour, made by means of a mixture of black and white lead together. If a white cloth, you muſt make a mixture of white and umber together, and you ſhade it with a compound of umber and black. If a red cloth, uſe vermilion in the lighter parts of the folds; lake and vermilion for the clear ſhades; and the lake alone, laid on the vermilion, will form the dark ſhades.

CXIII. *Directions for the mixture of colours.*

1. The pale yellow, for the lights, is made with white maſſicot. The *chiaro oſcuro,* with the maſſicot and umber. The dark ſhade, with umber alone.

2. The orange colour is made with black lead for the lights, which you ſhade with the lake.

3. The lake is uſed very clear, for the lights, in draperies; and thicker, for their ſhades.

4. The purple is made with blue, white, and lake, for the lights; blue and lake only for the clear ſhades, and indigo and blue for the darker ones.

5. The pale blue is uſed for the lights, and for the clear ſhades a little thicker; but, for the darker ſhades, mix the indigo and blue together.

6. The gold-like yellow is made with yellow maſſicot for the lights; and the clear ſhades with a mixture of black lead and maſſicot; the darker ſhade, with lake, yellow ocher, and very little black lead; and the darker of all, with Cologn earth and lake.

7. The green is of two ſorts.—The firſt is made with maſſicot and blue, or blue and white; and for the ſhades you make the blue predominate in the mixture. —The other is made with calcined green, and French berries' juice, mixed with calcined green; and you may form their ſhades by an addition of indigo.

8. For trees you mix green and umber together.

9. The grounds are made in the ſame way; whereever there is any green, you take calcined green, with French berries' juice.

10. For the diſtances, you mix green and blue together; and mountains are always made with blue.

11. The ſkies are likewiſe made with blue, but you muſt add a little yellow to them, when it comes near the mountains; and, to make the tranſition between that and the blue, mix a little lake and blue together to ſoften it.

12. Clouds are made with purple; if they be obſcure, you muſt mix lake and indigo together.

13. Stones are made with white and yellow mixed together; and their ſhades with black.

CXIV. *Directions for painting* freſco.

Begin firſt, by laying on the intended wall a coat of ſifted river ſand, mixed with old ſlacked lime, pulveriſed and ſifted alſo.—This coat is not to be laid on the wall, but in proportion as you paint; therefore, you are to prepare no more at a time than you are ſure to paint over in one day, while freſh and moiſt.—The body of the wall on which you lay this coat muſt previouſly be pargetted with plaiſter, or with a mortar made with ſand and lime. And if the paintings are to be expoſed to the injuries of the weather, the maſon's work muſt be made of bricks or free ſtones very dry.

2. Before you begin to paint, you muſt prepare your deſigns in their full intended ſize on paper, and chalk them one after another, as you go on, on the wall, in proportion as you work, and no longer than half an hour after the coat of prepared river ſand above mentioned has been laid on, and well poliſhed with the trowel.

3. In theſe ſorts of paintings all the compounded and artificial-made colours, as well as moſt of the mineral ones, are rejected. They uſe hardly any other but earths, which may preſerve their hue, and defend it from being burnt by the lime. And, that the work may for ever preſerve its beauty, you muſt obſerve to employ them quickly, while the coat underneath is ſtill moiſt; and never, as ſome do, touch them over after they are once dry, with colours diluted in yolks of eggs, glue, or gum, becauſe theſe colours always blacken, and never keep that vivacity and brilliancy thoſe have which have been laid at firſt when the ground was moiſt. Beſides, in the caſe of paintings expoſed in the air, this ſort of *touching up* is never good for any thing; and, too often, ſcales off in a very ſhort time.

CXV. *Directions for the choice, uſe, and compoſition, of the colours employed for the above purpoſe.*

The colours made uſe of, for the above purpoſe, are ſuch as follow.

1. The white. This is made with a lime which has been ſlacked for a great while, and white marble in ſubtile powder, mixed in about equal quantities. Sometimes

no more than a quarter part of marble duſt is required; which depends entirely on the quality of the lime, and cannot be known but when you come to uſe it; for if there be too much marble, the white will turn black.

2. Ocher, or brown red, is a natural earth.

3. Yellow ocher is alſo a natural earth, which becomes red if you burn it.

4. The obſcure yellow, or yellow ocher, which is alſo a natural earth, and ſlimy, is to be got by the ſtreams of iron-mines. It receives a fine colour from calcination.

5. Naples yellow, is a ſort of filth which gathers round the mines of brimſtone; and, though it be uſed in *freſco*-paintings, its colour nevertheleſs, is not ſo good as that which is made of earth, or, yellow ocher and white mixed together.

6. The purple-red is a natural earth, the product of England, and it is uſed inſtead of lake.

7. The *terverte*, from Verona in Lombardy, is a natural earth, which is very hard and dark. There is alſo another ſort of *terverte*.

8. The ultramarine, or, *lapis lazuli*, is a hard ſtone, and of a very difficult preparation. This colour, of the manner of preparing which we ſhall give (§ ix. Art. cxxxiii.) a juſt and preciſe account, ſubſiſts and keeps itſelf fine much longer than any other colour. It is not to be grinded, but diluted only on the pallet with oil.* As it is very dear, you may ſpare uſing it in *freſco* paintings, and ſupply it by ſmalt, which anſwers the ſame purpoſe, particularly in ſkies.

9. Smalt is a blue colour, which has very little ſubſtance. It is uſed in great landſcapes, and ſtands very well the open air.

10. Umber is an obſcure earth. It requires to be calcined in an iron box, if you want to make it finer, browner, and of a better look.

11. Cologn earth is a ſort of ruſty black, which is apt to diſcharge, and to turn red.

12. The earthen black, is a black which comes from Germany.—There is alſo another ſort of German black, which is a natural earth, and makes a bluiſh black, like that of charcoal. This ſort of black is that which is

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12. The earthen black, is a black which comes from Germany.—There is alſo another ſort of German black, which is a natural earth, and makes a bluiſh black, like that of charcoal. This ſort of black is that which is

uſed for making printers' ink.—There is another ſtill, which is made with burnt wine-lye.

Such are all the colours which are preferably to be uſed in *freſco*-painting. Grind and dilute them with water.—Before beginning to work, prepare your principal colours, and put each by themſelves, in ſmall gallipots. But it is neceſſary to know, that except the purple-red, the brown-red, the yellow ocher, and all the blacks, (thoſe particularly which have paſſed thro' the fire) turn paler as the *freſco* dries.

CXVI. *Directions for painting in oil on a wall.*

Method 1.

You muſt, when the wall is perfectly dry, give it two or three coats of boiling oil, or more, if neceſſary, ſo that the face of the wall may remain greaſy, and can ſoak in no more; then, lay another coat of ſiccative colours, which is done as follows. Grind ſome common whitening, or chalk, red ocher, and other ſorts of earth, pretty ſtiff, and lay a coat of it on the wall. When this is very dry, then draw and paint on it whatever you will, obſerving to mix a little varniſh among your colours, that you may not be obliged to varniſh them afterwards.

CXVII. *Method* 2.

There are ſome who prepare the wall another way, in order it may ſooner dry, and that the dampneſs ſhould not occaſion the colours to ſcale, as it ſometimes happens, on account of the oil which reſiſts it, and prevents it from ſweating out through the pores of the wall.—They make a cement with lime and marble duſt, or grinded tiles; this they lay on the wall with a trowel, with which they ſmoothen it, and then give it a coat of lintſeed oil with a large bruſh.—In the next place, they prepare a compoſition of Greek pitch, maſtich, and coarſe varniſh, which they boil all together in a pipkin, and lay afterwards, firſt with a bruſh, then ſmoothen with a hot trowel, in order to ſpread it better, and more equally.—When this is done, they lay on the wall the coat of ſiccative colours above mentioned, then draw their deſign and paint.

CXVIII. *Method* 3.

Others again make a cement, or mortar, with lime, brick-duſt, and ſand. And, when this is dry, they make another with lime, ſifted brick-duſt, and ſmiths' embers, or iron ſcum, all in equal quantities. Beat and incorporate all this together, with whites of eggs and lintſeed oil; and it will make ſo ſtrong a cement as cannot be equalled by any thing elſe. Its nature is ſuch, that while you are laying it on, you muſt not ſtop and leave it till you have finiſhed, otherwiſe it will aſſuredly crack in every one of thoſe places where you ſhall have reſumed your work. Therefore, as ſoon as you begin to lay it, go on without interruption, till the whole wall is entirely covered with it, and totally poliſhed.—And when dry, lay the above-mentioned coat of ſiccative colours, and proceed according to the other directions.

CXIX. *Directions for painting in oil on wood.*

Lay, firſt, one coat of ſize on the wood; then another of whitening diluted with ſize; then another again of boiling oil, as mentioned in the above Art. cxvi. When this laſt is thoroughly dry, you draw your deſign, and paint as uſual.

CXX. *Directions for painting in oil on canvas.*

1. Chuſe a fine and ſmooth tick or cloth, which nail on a frame. Paſs over it firſt a coat of ſize, and when dry, rub it over with a ponce ſtone to eat off all the knobs and knots. The ſize which you put firſt on the cloth is intended to lay down all the threads, and fill up all the ſmall holes, that the colour may not paſs through.

2. When the cloth is dry, lay on a coat of ſimple colour, which may not deſtroy the others; for example, brown-red, which is a natural earth, full of ſubſtance, and laſting. You may mix it, if you like, with a little white lead, it will dry the ſooner.—To grind this colour, they uſe nut, or lintſeed oil; and, in order to lay it as thin as it is poſſible, they uſe a large knife made on purpoſe.

3. When this colour is dry, you are to rub it again with the ponce ſtone, to render it ſmoother. Then lay

another coat of white lead and charcoal black, to render the ground greyiſh. In this, as well as in the preceding coats, you muſt take care to put as little colour as you poſſibly can, to prevent the cloth from cracking, and for the better preſervation of the colours which are to be laid afterwards in painting. For it is proper to obſerve, that could there be no ground at all laid on the canvas of a picture, previous to the painting of it, and ſhould one paint directly on the bare cloth, without any other preparation at all, the colours would appear much more to their advantage, and preſerve their brightneſs much longer. A proof of this aſſertion may be found in the practice of *Paul Veroneſe*, and *Titian*, who uſed to impregnate their canvas with water colours only, and paint afterwards in oil over that ground. This cuſtom of theirs has not a little contributed to render their pieces more lively and bright, becauſe the ground in water-colour draws and ſoaks the oil off the colours, which muſt render them much finer, ſince the greateſt cauſe of their dulneſs ariſes from nothing but the oil with which they are diluted.

4. They therefore, who wiſh to ſee their works keep bright and lively, uſe as little oil as poſſible, and keep their colours more ſtiff, mixing a little oil of ſpike amongſt them, which indeed vaporiſes very ſoon, but aſſiſts in rendering them more fluid and tractable in working.

5. Another cauſe of the colours not keeping a long while their beauty, is when they are too much tormented on the pallet, as it often happens that painters confuſe them in working. Whenever this is the caſe, they muſt needs be hurt, as there are many which adulterate, and otherwiſe corrupt, the others, and ſpoil the vivacity of their taint. Therefore, we cannot recommend too much to be cautious and clean in employing them, taking care to lay them as diſtinct and ſeparate as poſſible, each by themſelves, on the pallet, without mixing them too much with the bruſh or pencil. Never mingle together thoſe colours which are enemies to each other, as all the blacks are, particularly the lampblack; but, as much as poſſible, try to uſe them ſeparately by themſelves.

ſelves. Nay, when there is an occaſion of giving more ſtrength to ſome parts of a picture, ſtay till it is dry before you touch it up again, if thoſe colours are obnoxious to the others with which you are to do it. Therefore he ſhows his judgement in painting, who is not precipitate in laying his colours on his pictures, but lays them thick enough, and covers at ſeveral times the carnations, which, in terms of art is called *empater*.

6. As to what concerns the firſt laying of grounds on canvas in water colours, it is a method not commonly practiſed, becauſe they may ſcale, and cannot be rolled without ſome difficulty. For this reaſon, the cuſtom prevails of grounding the canvas with oil colours. But when the canvas is good and very fine, the leſs colour you can lay on for that purpoſe, the better. Take care only thoſe colours and oils are good.—The lead which ſome painters uſe to help their colours to dry the ſooner, ſoon deſtroys their brightneſs and beauty.

CXXI. *Which colours are uſed for the above purpoſe.*

1. Though all the different ſorts of colours which are uſed in painting in oil are not fit for that called *freſco*, yet it is true, however, that (except lime and marble duſt, which indeed cannot ſtrictly be called colours) every one of thoſe uſed in *freſco* are good in oil. Therefore, without entering into a repetition of thoſe already mentioned in Art. cxiii. we ſhall content ourſelves with making only the following addition to them.

2. White lead; this colour is made with lead which you bury. Several years after, this lead turns into ſome ſorts of flakes, which are of a very fine white.—Though this white exiſts in painting, and is in poſitive uſe, it has always, however, a very bad quality, which the oil corrects a little, when you grind it on the ſtone.

3. Ceruſe, or flake white; this is a ſort of ruſt gathered from lead, but of a coarſer nature than the other.

4. Maſſicot; there are two ſorts of this colour. The one is yellow, and the other is white. It is made with calcined lead.

5. Orpine, otherwiſe auripigment. It is uſed calcined and non-calcined.—To calcine it, they put it in an iron box, or in a pot well ſtopped. But few either cal-

cine it, or even uſe it at all, as the fumes are mortal, and it is very dangerous to uſe it.

6. Black lead. This comes from lead mines. They make very little uſe of it, becauſe it is a bad colour of itſelf, beſides that it is a great enemy to the others.

7. Cinnabar, or vermilion. This colour is drawn from the mines where they gather quickſilver. As it is a mineral, it is the reaſon why it does not reſiſt the impreſſion of the air, nor the injuries of the weather.

8. Lake. This colour, which is an artificial made one, is compoſed with cochineal, or with ſcarlet flocks; or again, Braſil wood, and ſome other ſorts of woods. There are ſeveral ſorts of lake made. It does not ſtand the weather.

9. Blue verditure and green verditure. It is very ſeldom uſed in any other works but landſcapes.

10. Indigo. This colour is generally uſed for making ſkies, or draperies; when properly uſed, it keeps its beauty a great while. You muſt not mix it with too great a quantity of oil, but lay it a little thick and dark, becauſe it diſcharges very much. They uſe it with great ſucceſs diluted with gum-water. It is a good colour for the compoſition of greens.

11. Brown-pink, otherwiſe called *ſtil-de-grain*. This colour is drawn from what is called French berries, which they ſoak and boil, then mix the reſult with vine-wood aſhes, or calcined white chalk, to give it a proper conſiſtence. When this is done, it muſt be ſtrained through a very fine cloth.

12. Lamp-black. This is a bad colour, but handy to paint black draperies.

13. Ivory-black. This black is made indifferently with common bones, as well as ivory, burnt. *Appelles* diſcovered this ſort of black, if we believe *Pliny*, Book xxxv. Chap. v.

14. Verdigriſe. This is the moſt pernicious of all the colours, and capable to ruin a whole picture, if there were never ſo little in the colour with which the canvas is firſt impregnated. It is however of a very agreeable look. They ſometimes calcine it to prevent its malignant effect; but it is as dangerous to uſe it

that way as orpine; and it is an undoubted truth that, however well prepared as it may be, it muſt be employed alone by itſelf, for it would ſpoil all the colours with which it may be mixed. The chief reaſon why they uſe it is, that it dries very much, and for that purpoſe they mix a little of it with the blacks, which can never dry without ſome aſſiſtance of that kind.

N. B. You muſt be very careful never to uſe, for other colours, the pencils with which you ſhall have laid any verdigriſe.

15. There are again ſome other ſorts of compound colours, which are never uſed but in oil.

CXXII. *Which oils are uſed in painting.*

1. The beſt oils which are uſed in painting are thoſe of nut and lintſeed. To render the colours more fluid, and ſpread more eaſily under the pencil, they uſe alſo oil of ſpike. This oil abſorbs itſelf in the canvas, and leaves the colours without any gloſs. They uſe it alſo for cleaning pictures; but you muſt take care it ſhould not carry the colours away with it. It is made with the flowers of a plant called Spikenard or Lavender Spike.

2 There is another oil drawn from Melezian-roſin, firs, &c. wherefore it is called Oil of Turpentine. This ſort of oil is alſo very good for touching up pictures; but it is chiefly good for mixing with ultramarine, and the different ſorts of ſmalts, becauſe it ſerves to make them ſpread with more facility, and evaporates almoſt immediately. When you make uſe of this oil, the leſs there is of any other oil in the colour, the better, as they all ſerve only to make it turn yellow.

3. There are other oils again which are denominated ſiccative oils, becauſe they ſerve to dry up the others the ſooner. Theſe are many in number and ſpecies. One ſort is nothing but the oil of nut, boiled with gold litharage and a whole onion peeled, which is taken off after boiling; this onion ſerving only to exſiccate the greaſy parts of the oil, and to clarify it. Another ſort is made with azure in powder, or ſmalt, boiled in oil of nut. When the whole has boiled, you muſt let it ſettle, and then ſkim off the top. It is fitteſt for diluting the

white, and ſuch of the other colours as you want to preſerve pureſt and neateſt.

CXXIII. *To take off inſtantly a copy from a print, or a picture.*

Make a water of ſoap and alum, with which wet a cloth or a paper; lay either on a print or picture, and paſs it once under the rolling preſs; then going round the other ſide to take it up, you will have a very fine copy of whatever you ſhall have laid it upon.

CXXIV. *Directions to make the Spaniſh carnation.*

Take baſtard ſaffron; waſh, dry, and grind it well. While you grind it, put in four ounces of pearl aſhes to every one pound of ſaffron. Incorporate them well, both together, and throw it into a double cloth jelly-bag. Then ſet half a pint of Spaniſh lemon's juice on the fire, and, when juſt luke-warm, pour it on the ſaffron in the bag, and lay under it what you want to dye. —The ſtuff which is to be dyed ought previouſly to have been boiled in alum-water, then rinſed and wiped between two cloths, as a preparatory proceſs to make it take the dye the better.

CXXV. *To make the Spaniſh ladies* rouge.

This rouge, is a vermilion, which is carefully laid on a ſheet of paper, from which, by means of wetting the tip of your finger with your ſpittle, you may then take it off, at will, and rub your cheeks, lips, &c. The method of making it is as follows.

1. Take good ſcarlet flocks and ſpirit of wine, or, in their ſtead, lemon's juice. Boil the whole in an earthen pot, well glazed and well ſtopped, till the ſpirit of wine, or lemon's juice, has charged itſelf with all the colour of the ſcarlet flocks. Strain this dye through a cloth, and wring it hard to expreſs well all the colour out. Boil it afterwards with a little Arabic water, till the colour becomes very deep.

2. On half a pound of ſcarlet's flocks you muſt put four ounces of ſpirit of wine, and a ſufficient quantity of water, to ſoak well the flocks. Then, in the colour you extract from it, put the bulk of a filbert of gum arabick,

rabick, and boil the whole in a ſilver porringer. When this is ready, as we ſaid before; proceed as follows.

3. Steep ſome cotton in the colour, and wet ſome ſheets of paper with it: let them dry in the ſhade, though in a place by no means damp at all. Repeat this wetting and drying of the ſame ſheets over and over again, as many times as you pleaſe, till you find they are charged with *rouge* to your ſatisfaction.

CXXVI. *A fine lake, made with ſhell-lac.*

1. Boil, and ſkim well, ſixteen pounds of chamber-lye; then put in one pound of fine ſhell-lac, with five ounces of roch alum in powder. Boil all together, till you ſee the chamber-lye is well charged with the colour, which you may eaſily know by ſteeping a bit of white rag in it; then take it out again to ſee whether or not the colour pleaſe you; and if it do not, let it boil longer, repeating the ſame trial, till you are perfectly ſatisfied.

2. Throw, now, the liquor in a flannel bag; and, without ſuffering what runs into the pan under to ſettle, repour it into the bag ſo many times, till the liquor runs at laſt quite clear, and not tinged. Then, with a wooden ſpatula, take off the lake, which is in form of curd; form it into ſmall cakes, or balls, and dry them in a ſhade on new tiles; then keep them for uſe.

N. B. For want of chamber-lye, you may, if you chuſe, employ a tart lye made of ſtrong pearl aſhes.

CXXVII. *Directions to make cinnabar, or vermilion.*

1. Put mercury (or quick ſilver) in a glazed diſh. Set it on a ſand-bath, and let it be well ſurrounded with the ſand every way. Pour ſome melted brimſtone over it; and, with an iron ſpatula, keep conſtantly ſtirring, till the whole is converted into a black powder.

2. With this powder, fill the quarter part of a retort with a ſhort and wide neck. Place it firſt on a fire of cinders. Then increaſe the fire by degrees, and continue it ſo for ten hours; after which you may make a blaſting one for twelve hours.

3. Obſervations.—By the firſt fire, there will ariſe a black fume.—By the ſecond, a yellow.—And by the

laſt a red ; which ſignifies the perfect accompliſhment of the cinnabar.—As ſoon as this is the caſe, let the veſſel cool, and you will find, in the receiver, and in the neck of the retort, a very fine cinnabar.

N. B. There are many who, inſtead of a glaſs retort, uſe earthen, or ſtone ones, which all equally bear the fire. They make a ſlow fire for about half an hour, then increaſe and continue it till they ſee the red fumes ariſing.—Both methods are equally good, and anſwer perfectly the ſame purpoſe.

CXXVIII. *Another, very different, method of making cinnabar.*

1. Melt, in a pipkin, ſome brimſtone over a ſlow fire. When melted, take it out, and with one hand ſqueeze a knot of mercury between your fingers through a cloth into the melted ſulphur ; and, with the other, ſtir well till the lump is become quite cold and black.

2 Put this into a ſubtile powder, with which having filled the fourth part of a very long retort, you will lute it well, and very exactly, with a good lute. Place it next, without a receiver, for two or three hours, on a very mild fire ; then introduce into the retort a long funnel which will reach as far as the matter, and even to the bottom of the retort ; through that funnel paſs a long ſpatula, which touching alſo the bottom of the retort, ſhould come out of the funnel five or ſix inches. In the middle of the ſpatula let there be a bung of lute round it, well dried, which will ſtop ſo well the retort as to prevent it from breathing any air. When all this is done, puſh on the fire to a pretty ſmart degree, and keep it ſo for five hours.

3. At the end of this term, draw out the ſpatula, and introduce, through the ſame way that it came out, two ſpoonfuls, or thereabouts, of your prepared powder of brimſtone and quickſilver, with which you intend to make cinnabar, and which you ſhall, for that purpoſe, have kept warm in a veſſel by the corner of the fire, that it may not cool the retort in going in, and thereby retard the operation.

4. Continue ſo to do, adding every hour new matter, by means of the drawing out the ſpatula to introduce

the new powder, and replacing it quickly, till you have increaſed your lump of cinnabar to the quantity of one hundred weight.—The ſpatula's uſe in the neck of the retort is to prevent its filling itſelf up by the ſublimation of the matter, which would occaſion two evils, that of breaking of the retort, and of preventing the introduction of new powder to increaſe the lump of cinnabar. So that, at the ſame time it keeps a free paſſage into the retort, it nevertheleſs ſtops it too, by means of the ball of lute which is round it.—But, in the laſt place, in order there ſhould remain no vacancy in the middle of the cinnabar-lump, take off the ſpatula for the laſt time, and inject freſh powder; then, without reintroducing the ſpatula, ſtop the retort with a lump of lute only.—Thus, the longer you keep the fire up, the harder and redder the lump of cinnabar becomes.

5. Obſervations.—This cinnabar is the very ſame which empyricks uſe in ſumigation, along with aloes wood, myrrh and other aromatics, to excite the mouth, or belly, flux, which they reiterate two or three times, or till that flux is abundant enough to procure the cure of the venerian diſorder.—It is the ſame alſo which painters make uſe of; and which enters into the compoſition of ſealing wax.

There are alchymiſts who maintain, they can with the natural or fictitious cinnabar we have juſt mentioned reſolve irreductibly either gold or ſilver; becauſe they are of opinion, that theſe metals have ſprung from it in the entrails of the earth. But it is proper to tell them here, that they would not perhaps commit ſo groſs an error, if they attempted this proceſs with the cinnabar, which the philoſopher endeavours to draw from quick gold and ſilver, and which are known to him alone. To which reflection I ſhall add, that he to whom quick gold and ſilver are known can do with them alſo every thing as with the metals; but as the old ſaying is, *Non licet omnibus adire Chorintam.*

CXXIX. *An azure as fine as, and which looks ſimilar to, ultramarine.*

Grind well together into powder three ounces of ammoniac ſalt, and ſix of verdigriſe. Then wet it, in continuing to grind it with oil of tartar, till you have made it pretty fluid. Put this into a glaſs matraſs, and bury it for five days in hot dung. At the end of that term you will find your compoſition turned into a fine azure.

CXXX. *The ſame, another way, as practiſed in Germany.*

Here is another method of proceeding, to make azure, as they practiſe it in Germany, and which is very fine and good.

1. Diſtil, in an alembic, one pound of vitriol, half a pound of nitre, and three ounces of cinnabar. In this water put tinſel or copper; they will diſſolve. When the diſſolution ſhall be perfected, add a ſufficient quantity of calcined pewter to render your liquor quite milk-white. Let the whole reſt for three days, and then you will have a middling azure.

2. A very good obſervation. The liquor which ſtills from the vitriol, cinnabar, and nitre, has the power to diſſolve any ſort of metal whatever.—It has again this additional virtue, that if you rub the forehead of a horſe with it, the hair will inſtantly turn, and remain, white at that place.

CXXXI. *Another very fine azure.*

Diſſolve, in one pound of the ſtrongeſt double diſtilled wine vinegar, two ounces of ammoniac ſalt in powder, one of copper filings, and one pound of the whiteſt eggs ſhells calx. Put this compoſition into a copper veſſel, which you muſt ſtop and lute ſo well, with its copper lid, that nothing can poſſibly exhale from it. Place this for one month in hot horſe dung, and at the end of that term you will find a very fine azure.

CXXXII. *Another.*

Take vitriol calcined to redneſs, one part: *ſulphur vivum*, two; and quick ſilver, three. Mix well all into one powder, which you muſt put into a glaſs retort, and bury it over in hot horſe dung for forty days; after which term the compoſition will be turned into a very fine azure.

CHAP. VI.

CHAP. VI.

SECRETS relative to the ART of GILDING.

I. *The method of gilding with ſize, or with oil.*

THE gold leaves which are commonly uſed in gilding are of different ſizes, as well as of various degrees of thickneſs, as there are ſome the thouſand of which comes to no more than three pounds altogether, and others which come to three pounds ten ſhillings, and four pounds, *per* thouſand.

To gild on iron and other metals, the ſtrongeſt and the pureſt are preferable. That which is not ſo pure is commonly employed by carvers in wood, as it comes cheaper to them.

We are indebted to the diſcovery which has been made a few ages ſince, of the ſecret of painting in oil, for the means of gilding in ſuch a manner as to reſiſt the injuries of the weather.—An art the ancients were not acquainted with, and they could not obtain from their method of applying gold, ſince they uſed nothing elſe but whites of eggs for gilding marble, and ſuch other bodies as do not admit of being committed to the fire. As for the wood, they made a compoſition which was uſed with ſize. But neither ſize nor whites of eggs can reſiſt the water. Therefore they could not, with propriety, gild any other works than ſuch as were ſheltered from the intemperance of the weather, *viz.* their arches, their cielings, which were all gilt in that manner. The compoſition they uſed for gilding on wood was made of a ſlimy earth, which held the place of the ſized white we uſe now-a-days, and with which gilders make that firſt coat, called by artiſts *aſſiette*, or burniſh-gold ſize.

II. *To gild with ſize, or what is called in burniſh-gold.*

1. You muſt firſt begin by preparing your ſize, which is made as follows.—Take about a pound of odd bits of parchment, or leather, ſuch as is prepared for gloves or breeches. Put this a-boiling in a pailful of water,

till it is reduced to one half, and your ſize is done as it ought to be.

2. When you want to uſe it for wood which is to be gilt, it muſt be boiling hot, otherwiſe it would not penetrate ſufficiently into the wood. If you find it too ſtrong, you may weaken it, by adding water to it. Then with a bruſh made of boar's briſtles, you lay the ſize in ſmoothening, if it be a plain work; but, if a carved one, you muſt lay it in ſtumping with the bruſh; either of which ways is equally termed *to ſize*.

3. When the wood is thus prepared with ſize only, you muſt make another preparation, called *an infuſion of white*, in the following manner. Take a certain quantity of ſize boiling hot, as much as you think will be ſufficient for your work. Dilute a diſcretionable quantity of pulveriſed whitening in it, and let it infuſe ſome time. When it ſeems well diſſolved, ſtrain it through a cloth to make it finer; then, with a bruſh, as above, give ſeven or eight different coats of it in ſtumping on your work, and two more coats in ſmoothening, if it be on carved work; but if on a plain one, you muſt give a dozen of coats at leaſt; for the white is the nouriſhment of gold, and ſerves to preſerve it a great while.—You muſt be very careful not to give coat upon coat, unleſs the laſt be dry; otherwiſe the work might ſcale. You muſt even have a great care that each coat ſhould be laid on as perfectly equal as poſſible, both in the ſtrength of the ſize, and thickneſs of the white, to avoid the ſame inconveniency.

4. When you have given the requiſite number of coats, whether in ſtumping, or in ſmoothening, you muſt let the work dry thoroughly before you poliſh it. As ſoon therefore as it is perfectly dry, you muſt have a coarſe rough cloth, quite new, and as cloſely weaved as poſſible, with little deal ſticks, cut ſquare, angular, or pecked, according as the nature and carving of the work require; and, thruſting one of theſe ſticks into the cloth, you rub and ſmoothen the white. Then, taking a bruſh made of boar's briſtles, which has been already uſed, becauſe it is ſofter, dip it into ſome clean water, and wet the work in proportion as you go on in poliſhing, with

your little ſticks wrapped up in cloth. This precaution completes the ſmoothening of the work, by levelling the ſmall bumps and imperceptible undulations you may have made either in giving the white, or in poliſhing it. For, the ſmoother the work is made, the more eaſy to be burniſhed the gold will be, after having been applied. The wetting and bruſhing thus your work, in proportion as you poliſh it, with a bruſh a little worn, has again that other object of cleanſing it of the mud you occaſion in ſo doing; therefore ſpare not to purge your bruſh of all the filth it gathers about the point of its hair, by waſhing and ſqueezing it again as ſoon as you ſee them grow thick in the leaſt with that dirt.

5. When the white is once more dried, rub it with ſhavegraſs, or ruſhes, in order to level ſtill better all the grains and inequalities which may be on it. Do not however rub it too much with the ſhavegraſs, becauſe you may thereby fall from one error into another, and make your white what is called greaſy or ſmeary, which would prevent it afterwards from uniting with the burniſh gold ſize, which is to precede the laying on the gold.

6. Now, as it is difficult that after ten or a dozen of coats of white the carving ſhould not be choaked up, they who are fond of finiſhing their work highly, take a certain iron inſtrument, made on purpoſe, and curved by one end, (called by the French, a *fer-a-retirer)*; with this raffling-crook they go over all the turns, and open all the places which want it, to reſtore them to their former ſharpneſs. Or elſe, you take what is called a *fermoir*, or a *gouge*, or a *cizel*, and give to the ornaments the ſame form which the carver obſerved when he firſt cut them, turning agreeably the ſides of leaves according to nature; then bretelling with another inſtrument, called the *veining-crook*, (in French *fermoir-a-nezrond)*, all the ornaments, you thereby render the work much neater, and more delicate than the carver had firſt made it. That you may cut the white more neat, obſerve only to wet it a little with a bruſh.

7. When works are not of great conſequence, you may eaſily ſave yourſelf all that trouble; principally if the carving is pretty neatly finiſhed, by giving two or

three coats only of white very clear. But, as it is very true the white is the principal and only ſupport of gold, this operation is never ſo perfect, nor ſtands ſo long; and the carving ſeems a great deal more rough than when it has received ten or twelve coats of white, and been afterwards re-cut, carved, veined, and repaired over again, as I ſaid before.

8. After every thing has been performed about the white, which could be required to completely finiſh that preparatory part, you muſt dilute ſome yellow ocher, and grind it with ſized water, weaker by half than that which you uſed for the whitening. And, having made it a little fluid and warm, you lay one coat of it over all the work, principally in ſuch deep places of the carving as you cannot come at to lay the gold leaf, that this colour may ſupply its want.

9. When the yellow is dry, you muſt lay over it (in all the raiſed places, but not in the bottom grounds) three different coats of another ſort of compoſition, called in French *aſſiette*, and here, *burniſh-gold ſize*, made and prepared in the following manner.—Bol armenian, about the bigneſs of a nut, and grinded by itſelf; blood ſtone, or red chalk, the bulk of a horſe bean, and black lead pulveriſed as big as a pea, grinded both together; and at laſt one drop or two of tallow, which you grind afterwards with all the other drugs and water, taking them little at a time, to grind and incorporate them the better.—Put this compoſition in a cup, and pour over it ſome of your afore-mentioned ſize, boiling hot, and ſtrained through a cloth. Stir and mix all well, while you pour that ſize, that the whole may be well diluted. The ſize you make uſe of in this caſe muſt, to be right, be of the conſiſtence of the jelly you eat, and no more, when cold.—There are thoſe who mix again beſides, with this compoſition, a little ſoap, or olive oil, with a little of calcined lampblack. Others add burnt bread, biſtre, antimony, tinglaſs, butter, ſugarcandy, &c. every one according to his own way. All theſe ſorts of greaſe ſerve to facilitate the burniſhing of the gold, and help to give it more brightneſs. Be, however, this compoſition made how

it will, obſerve to keep it warm over hot aſhes in a chaffing-diſh, whenever and while you uſe it. The bruſh you lay it on with ought to be ſoft, and the firſt coat you lay pretty thin; but, as for the two others, they muſt be ſo thick that the ſtuff ſhould run with difficulty from the bruſh. Each coat muſt be well dried before giving the next. And, when the laſt is alſo perfectly dry, take a ſtiffer bruſh with which you dry-rub the work all over, to ſmoothen all the grains and little riſings of the gold ſize, and thereby facilitate the burniſhing of the gold.

10. The gilding is now performed as follows. Have firſt a pipkin very clean, in which you put ſome very clean and filtered water, and a few wetting pencils, which ought to be made in the form of thoſe ermine tails which hang in the ermine ſkins.—Get next a cuſhion, which is to be made with a light and flat ſquare board covered with a calf leather, fixed all round with nails, and ſtuffed underneath with cotton. Let this cuſhion be alſo ſurrounded by the back part, and two thirds of each of the two ſides, with a band of parchment of five or ſix inches high, to prevent the air, which is always fluctuating about you, and ſtill more ſo if any body ſhould happen to paſs and repaſs in the place where you ſit, from blowing the gold leaf which is laid upon it.

11. To apply the gold, you proceed thus. Hold your cuſhion in your left hand along with the gilding pencils, which are to be of different ſizes. On this cuſhion put what quantity of gold leaves you think proper. With the gilding knife ſpread theſe leaves very ſmooth, in doing of which you will aſſiſt yourſelf very much if you breath over them while you paſs the knife under. Then cut it in as many parts and ſizes as you want, or, if there be occaſion for it whole, take it with your tip, and lay it.—A tip, (in French, *palette)*, is an inſtrument made with the point of a ſquirel's tail placed upon a round ſtick flattened, and about half an inch wide by one end, with a ſlit, to ſet and ſpread the better the ſquirel's tail.—This tip therefore you paſs along your cheek, and with it take off the gold leaf, or what part

of it you have divided, and thus lay it on the work. Previouſly, however, to this, you muſt have paſſed on the place one of your pencils immediately before the laying of the gold, otherwiſe the gold would be inceſſantly ſlitting and cracking.—As ſoon as the gold leaf is laid on the work, take your water pencil quite wet, and paſſing it above it on the work, let the water run from it under the leaf juſt applied; this will immediately make it ſpread and ketch. But if it ſhould paſs over the gold leaf, it would immediately ſpot and ſpoil it; and as it is impoſſible to lay gold on gold, eſpecially when wet, you would not be able to repair it unleſs you take the gold leaf entirely off, and put another in the ſtead. On the contrary, by the water ſlipping under the gold leaf juſt laid, you will find that this ſpreads infinitely more eaſy, and almoſt of itſelf; it ſticks faſter on the gold ſize, never ſcratches, is more eaſily duſted for burniſhing, or matting with ſize; in ſhort the work looks infinitely better in every reſpect.—As it is impoſſible with all poſſible care one can take, but there may happen ſome little accident now and then, principally in carved works, you muſt, in ſuch a caſe, cut ſome ſmall bits of gold, which, with a pencil, you take and put on the defective places when you look your work over; and this is called faulting the work, in French *ramender*.

12. When the work is perfectly dry, burniſh it where you think proper, in order to detach certain parts from the other, to make them ſet off and ſhew to better advantage. To that effect you uſe an inſtrument called a *burniſher*, made either of a real Wolf's tooth, or rather, as they now uſe it, an agate, made in the ſame form, and finely poliſhed, or elſe a pebble called *blood ſtone*.—Before burniſhing, you muſt, with the crooked point of your burniſher, puſh down all the parts of gold in the hollow parts which you forgot to do with the pencil, then duſt it with a large one. When the work is burniſhed where you want it to be ſo, you matt and repaſs, with a very ſoft pencil and burniſh gold ſize, what has not been burniſhed; or, you may again put ſome vermilion, to raiſe the gold, and make it

look brighter; which is called, in term of art, *repaſſing*.

13. There is again another repaſſing you muſt not forget, which is to lay, in all the hollow places of a carved work, a coat of a compoſition of vermilion, as I am going to preſcribe, and which will give an incomparable fire to the gold, and make it look as gold-ſmith's work. This compoſition is ſuch:—Grind together, on marble, ſome vermilion, gamboge, and red brown, which you mix with a little Venetian turpentine, and oil of turpentine. There are who make it otherwiſe, and uſe only fine lake, and others, dragon's blood; but the firſt receipt is the beſt.—If, after having burniſhed, matted and repaſſed your work, you find again ſome defective places, you may mend them with gold in ſhell, which, as you know, is diluted with a little gum arabic, and applied with a pencil. This ſort of faulting, which is no ſmall addition to the beauty and richneſs of the work, the French call *buckling with gold in ſhell*.

II. *To gild without gold.*

Put in a crucible one ounce of ammoniac ſalt, and half that quantity of common mercury. Cover and lute well the crucible for fear the mercury ſhould exhale. Give this a ſmall fire for the ſpace of half an hour. Increaſe the fire afterwards till the crucible is quite red hot. Then throw the compoſition into a pan of cold water. As ſoon as this matter is cold, it will be as hard as a ſtone. Break and grind it, and diſſolve it in gum water Wherever you lay a coat of this, it will look like gilt.

III. *Another to the ſame purpoſe.*

To gild frames, and other common things, pulveriſe and incorporate well together the yolk of an egg with two ounces of mercury, and one of ammoniac ſalt. Put this into a matraſs, ſtop it well, and ſet it, for four and twenty days, in hot horſe dung.

IV. *A gold without gold.*

Grind ſome purpurine with water; then put it to ſoak with chamber-lye in a pan; ſtir and ſkim it. When it has done throwing any ſcum, decant the chamber-lye, and ſupply it by gum water. Whatever you write or draw with this compoſition will look as gold itſelf; and it admits even of being burniſhed with the burniſher.

V. *The preparations of the gum-water.*

In half a pint of common water put two ounces of gum arabic, bruiſed in ſmall bits. When diſſolved, it makes the right degree of gum-water to be uſed for the above purpoſe.

VI. *To write in gold or ſilver.*

Draw the juice of juniper leaves. In this juice throw ſome gold or ſilver filings, which you ſet there to infuſe for three whole days: then make the trial.

VII. *To gild on glaſſes, earthen, or china wares.*

Take a glaſs, or a china cup; wet it, and lay your gold where and how you like, then let it dry. Diſſolve ſome borax in water, and of this liquor lay a coat on your gold. Set it in the fire till your glaſs powder in melting makes a varniſh on the gilded parts, which will then appear very beautiful.

VIII. *To write, or paint, in gold colour.*

Pulveriſe ſome purpurine into ſubtile powder; then water it over, gently, and by little at a time, with chamber-lye, turning inceſſantly, while you pour, with a ſtick. Let it ſettle, and waſh it in common water, ſo many times till you ſee the water comes out at laſt quite clear. Each time you change the water take particular care to allow a ſufficient time for the ſettling. Then mix after the laſt water is poured away, ſome powder of ſaffron and gum-water with your ground, and either write or paint, which you like. This ſecret is by no means an indifferent one; and you will find it very agreeable if you try.

IX. *To write, or paint, in ſilver, eſpecially with a pencil.*

Pound well, in a bell-metal mortar, ſome tin-glaſs; then grind, and dilute it, on porphyry, with common water. Let it ſettle, and throw off the water, which will be black and dirty. Reiterate this lotion ſo many times till the water remains clear. Then dilute it in gum-water, and either write or paint with it. It will appear very handſome, and no ways inferior to the fineſt virgin ſilver.

X. *To whiten and ſilver copper medals.*

1. Take filings from Cornwall pewter and make a bed of them at the bottom of a pipkin. On this bed lay one of your medals, taking care however they ſhould not touch each other. Make another bed of filings over theſe medals, and one of medals again on theſe filings. Continue this alternate ſtratification of medals and filings, till you have laid all the medals you wanted to whiten.

2. When this is done, fill up your pan with water, and put on it a powder compoſed of roch-alum and tartar from Montpellier, well grinded and mixed together. Boil the whole till the whitening of the medals is complete.

N. B. They muſt have previouſly been cleanſed with ſoft ſand, or ſtrong lye, to purge them from any greaſe.

XI. *A water to gild iron.*

In three pounds of river-water, boil roch-alum, one ounce, Roman vitriol as much, verdigriſe half an ounce, gem ſalt three, and orpine one. Then add tartar half an ounce, and the ſame quantity of common ſalt. Boil it again with this addition. Now heat your iron, and when warm, rub it over with this ſtuff quite hot, then dry it by the fire, and burniſh.

XII. *To whiten exteriorly copper ſtatues.*

Take ſilver-cryſtals, ammoniac, gem, common and alkali, ſalts; of each of all theſe two drachms. Make all into a paſte with common water. Lay your figures over with it, and ſet them on red-hot charcoals till they ſmoak no more.

XIII. *To write in gold letters on pots, or boxes.*

Diſſolve iſinglaſs in water. When reduced into a ſize, or glue, dilute ſome red tartar with it, after having made it into a very ſubtile powder. With this mixture, and a pen, or a pencil, write on your pots or boxes; then put a thick gold leaf on it of the ſame ſort as metal gilders uſe. And, when this is dry, burniſh as uſual.

XIV. *To gild ſilver in water-gilding without the aſſiſtance of mercury.*

1. Take firſt the fineſt gold, forge it weakiſh, then cut it in bits and neal it, on an iron plate, or in a crucible.

2. Have next a glaſs matraſs, put your gold in, and to every drachm of gold, put half a pound of ammoniac ſalt, and two ounces of good *aquafortis*. Cover the matraſs with a ſheet of paper, turned conically by one of its corners upon one of the long ſides, ſo as to form a ſort of funnel or grenadier's cap figure, with the ſmalleſt and not quite cloſe, but terminated in a ſmall orifice, to give a free paſſage to the fumes of the *aquafortis*. Set this matraſs on a very ſlow fire, that the gold may have time to diſſolve gently and gradually, and ſhake often the matraſs to help the diſſolution. Be very careful not to make the fire too ſtrong; but, on the contrary, let it be very mild, for the gold would infallibly ſublime and waſte itſelf all into vapours.

3. When the gold is entirely diſſolved, pour this liquor into a glaſs, or china bowl; wet ſome old coarſe linen rags on them, which you ſet to drain on ſmall ſticks on another bowl, doing the ſame with what drains from them till you have uſed all your liquor; then dry them before a gentle fire.

4. When dry, lay them on a marble ſtone, and ſet them on fire. And as ſoon as they are conſumed, grind them into a fine powder, which you put afterwards into a crucible on a little fire. When this powder is lighted like ſparkles of fire, put it on the marble again, and ſtir it with an iron rod till you ſee no more fire. Grind it then again as before, as much as you poſſibly can, and it is fit for gilding any ſort of ſilver work you pleaſe.

XV. *The liquor, called the* ſauce, *which is to be uſed for colouring ſilver plates, gilt with the above deſcribed powder.*

1. Grind well together, into a ſubtile powder, ſulphur and pearl aſhes, of each one ounce, and two of common ſalt.

2. Then, when you want to colour your gilt plates,

have a quart of water, and half a pint of chamber-lye, in which you mix a large ſpoonful of the above powder. Set this to boil in a red copper pot, very clean. When this ſauce does boil, you muſt tie your plate with a ſilver wire, by which you hold it, and then plunge it in; there leave it for about a minute, or two at moſt; then take it out again by the ſame wire without touching it with your hands, and plunge it in the ſame manner in cold clean water. Should it then not look high coloured to your ſatisfaction, you have but to put it again in the ſauce, as before, till you find it ſufficiently coloured.

3. The next ſtep is to give the piece thus coloured to the burniſher, with a ſtrict charge not to uſe any vinegar in his burniſh. This receipt is a very good and particular ſecret.

XVI. *A water which gilds copper and bronze. A ſecret very uſeful for watch and pin makers.*

Diſſolve equal parts of green vitriol and ammoniac ſalt in good double diſtilled vinegar; then vaporate the vinegar, and put it in the retort to diſtil. If in the product of the diſtillation you ſteep your metal after being poliſhed and made hot, it will come out perfectly well gilt.

XVII. *Another.*

Take burnt copper and ammoniac ſalt, equal parts; *alumen plumeum*, four ounces; common ſalt decrepitated, as much. Diſſolve the whole in double diſtilled vinegar, then vaporate this vinegar. Diſtil from the reſt an *aquafortis* in which, if you extinguiſh, five or ſix times, braſs, copper, iron, or ſilver, made hot, theſe metals will aſſume the colour of gold.

XVIII. *A water to gild ſteel or iron, after being well poliſhed.*

Take ſeven ounces of orpine; *terra-merita*, one and a half; ſocotrine aloes, four and a half; gamboge three and a half. Put all into powder, and put it in a retort, with ſo much of pickle water as will cover theſe powders by two fingers. Stir well, and mix all together; let it infuſe four and twenty hours and diſtil. With the liquor which ſhall come from the diſtillation, and which you may keep by for uſe, rub the ſteel, iron, or copper, and ſet it to dry in the ſhade.

XIX. *To ſilver copper figures.*

1. Cleanſe well firſt the figures with a ſtrong lye, made with either pearl or brill aſhes or common ſalt or alum, no matter which. Wipe them well when done, and rub them with a compoſition of tartar and ammoniac ſalt mixed (by means of *aquaforti*) with a little diſſolution of ſilver.

2 Now with a piece of leather, wetted in your ſpittle, take of theſe powders, and rub the copper figures till they are ſufficiently ſilvered.

XX. *To ſilver, or gild pewter.*

1. Take one of the fineſt and moſt delicate goldſmith's wire-bruſh; rub your pewter with it ſo as to mark it with the ſtrokes of the bruſh. When done, lay a double gold or ſilver leaf on that place of the pewter; then put over it a piece of ſkin or leather, and over that ſkin ſome putty. With a burniſher rub, for a good while, on that putty; then with a piece of pewter on the naked gold without either ſkin or putty.

2. Have a care that the pewter which you are thus a gilding ſhould be very clean, and that your breath ſhould not go over it. Therefore, to do that operation, you muſt put your handkerchief before your mouth, and manage it ſo in tying it, that there ſhould be a paſſage preſerved on each ſide of your face which ſhould drive your breath along your cheeks, round your head, and quite up behind your ears.

XXI. *A compoſition to lay on lead, tin, or any other metal, in order to hold faſt the ready gilt leaves of pewter which are applied on it; uſeful for gilding on high ſteeples, domes,* &c.

1. Melt together, on a ſlow fire, black pitch, two pounds; oil of turpentine, four ounces; and a little roſin. When the whole is diſſolved and mixed well into a kind of varniſh, lay a coat of it on your work.

2. Now, as upon ſteeples, the common method of gilding cannot, on account of the wind, be practiſed; have only the exact meaſures and dimenſions of the

place intended to be gilt, then, at home, and at leiſure, cut to them ſome fine leaves of pewter, and gild them as uſual. When done, you have no more to do but to carry up theſe pewter leaves, rolled, in a baſket; and having burniſhed the place on which they are to be applied with the above compoſition, lay the gilt pewter leaves on it, and they will ſtand faſt enough.

XXII. *To clean and whiten ſilver.*

1. Raſp four ounces of dry white ſoap in a diſh. Pour a pint of warm water on it.—In another diſh put a penny-worth of wine lye dried in cakes, and the ſame quantity of the ſame water.—In a third diſh put alſo another penny-worth of pearl aſhes, with another ſimilar quantity of the ſame water.

2. Then, with a hair bruſh ſteeped firſt in the wine lye, then in the pearl aſh, and laſtly in the ſoap liquors, rub your ſilver plate, and waſh it afterwards with warm water, and wipe it with a dry cloth kept on a horſe before the fire for that purpoſe.

XXIII. *The preparation of gold in ſhell.*

Take ammoniac ſalt, and gold leaves, equal quantities. Bruiſe this in a mortar for two or three hours; and towards the end add a diſcretionable quantity of honey.

XXIV. *To bronze in gold colour.*

Rub the figure firſt with *aquafortis*, in order to cleanſe and ungreaſe it well. Then grind, on porphyry, into a ſubtile powder, and mix with lintſeed oil, equal quantities of *terra merita* and gold litharage. With this compoſition paint the figure over.

XXV. *Another to the ſame purpoſe.*

Take gum elemy, twelve drachms, and melt it. Add one ounce of crude mercury, and two of ammoniac ſalt. Put all in a glaſs phial, and ſet it in a pot full of aſhes; lute well the phial, and melt the contents. When perfectly diſſolved, add a diſcretionable quantity of orpine and braſs filings; mix all well, and with a pencil paint what you will over with it.

XXVI. *How to matt burniſhed gold.*

Grind together, blood-ſtone and vermilion with the white of an egg. Then, with a pencil, lay it in the bottom grounds.

XXVII. *How to do the ſame to burniſh ſilver.*

Grind ceruſe-white with plain water firſt, then with a very weak iſinglaſs water, and make the ſame uſe of this as of the other.

XXVIII. *The method of applying gold, or ſilver, in ſhell, on the wood.*

Black wood, or that which is dyed ſo, is the fitteſt to admit of this operation. The method of applying it is this.

1. Take a little gum adragant, which you dilute in a good deal of water, to make it weak. With this weak gum water dilute your gold or ſilver; and, with a pencil, lay it on ſuch places of your work as receive and ſhew the light, without touching on thoſe which are the ſhades. To expreſs theſe, touch the parts with indigo diluted in a very weak gum-arabic water.

2. When this is done, lay one coat of drying varniſh, made of oil of ſpike and ſandarack. If the varniſh be too thick, thin it with a little oil; and, in mixing it, take care not to boil it ſo hard but you may bear ſome on your hand without ſcalding the place.

N. B. Have attention to make your gum-waters for this ſort of work always very weak; otherwiſe they would tarniſh and ſpoil all the gold or ſilver.

XXIX. *To gild ſandy gold.*

Take any colour, and grind it either with oil, or with gum. Lay a few coats of it on your work, according as you think there may be need of it. When dry, lay one coat of ſize, and while it is ſtill freſh, ſift ſome braſs filings on it; let it dry ſo, and varniſh it afterwards.

XXX. *The varniſh fit to be laid on gilding and ſilvering.*

Grind verdigriſe, on marble, with common water, in which you ſhall have infuſed ſaffron for eight hours.

XXXI. *The method of bronzing.*

Take three pennyworth of ſpal, one of litharage, a gill of lintſeed oil, and boil the whole to the conſiſtence of an unguent. Before you apply it, dilute the quantity you intend to make uſe of with turpentine oil, and lay a coat of vermilion on the work before bronzing.

XXXII. *A water to gild iron with.*

1. Put in a glaſs bottle, with a pint of river-water, one ounce of white copperas, and as much of white-alum; two drachms of verdigriſe, and the ſame quantity of common ſalt. Boil all together to the reduction of one half. Then ſtop the bottle well for fear the contents ſhould loſe their ſtrength.

2. To gild the iron with it, make it red hot in the fire, and plunge it in this liquor.

XXXIII. *To make the fine writing-gold.*

1. Take gold in ſhell, and ſulphur, in the proportion of ten drachms of this, well grinded on porphyry and amalgamated, to every ſequin-worth of the other. Put this mixture into a proportionable leather bag, in which you ſhall work it continually for the ſpace of two days. Then pour all into a crucible, and burn it on a ſlow fire. This done, waſh what remains with filtered lime water, and, by filteration alſo, get your water out again from the compoſition. If, after this operation, you do not find it high enough yet in hue, waſh it again and again in the ſame manner, till it looks fine.

2. To apply it, dilute ſome bol armenian with iſinglaſs, and write what you pleaſe, and let it dry; then apply your gold, and when dry burniſh it.

XXXIV. *How to get the gold, or ſilver, out of gilt plates.*

1. Mix together one ounce of *aquafortis*, and one of ſpring water, with half an ounce of common, and one drachm of ammoniac, ſalts. Put all on the fire, and boil it; then put in to ſoak the plate from which you want to get the gold or ſilver out. A little while after, take your plate out, and ſcrape it over the liquor.

2. The gold will remain ſuſpended in this regal-water; and to make a ſeparation of them, pour in it double the quantity of common water; or again, throw a halfpenny in it, and boil it, and all the gold will fix itſelf to it.

XXXV. *To gild paper on the edge.*

1. Beat the white of an egg in three times its quantity of common water, and beat it till it is all come into a froth. Let it ſettle into water again, and lay a coat of it on the edge of your paper.

2. Next, lay another of bol armenian and ammoniac ſalt, grinded with ſoap ſuds. Then put the gold, and let it dry, before burniſhing it.

XXXVI. *To gild on vellum.*

Mix ſome ſaffron in powder with garlick juice. Put two or three coats of this on the vellum, and let it dry a little, but not quite. Then breathing on the coat, apply the gold leaf with cotton; and, when dry, burniſh it.

XXXVII. *Another way.*

Lay firſt a coat of lime and burnt ivory, grinded together with a weak iſinglaſs water. Apply the gold on it; and, when dry, burniſh it.

XXXVIII. *Another way.*

Grind and mix together four ounces of bol armenian, one of aloes, and two of ſtarch; dilute it in water, and lay a coat of it on the vellum, then the gold immediately. When all is dry, burniſh it.

XXXIX. *A gilt without gold.*

Take the juice from ſaffron flowers, in the ſeaſon, or dry ſaffron in powder, with an equal quantity of yellow orpine well purified from its earthly particles. Grind all well together, and put it a-digeſting in hot horſe dung for the ſpace of three weeks. At the end of that term you may uſe it to gild whatever you like.

XL. *To gild without gold.*

Open a hen's egg by one end, and get all out from the inſide. Re-fill it again with chalidonia's juice and mercury; then ſtop it well with maſtich, and put it under a hen which juſt begins to ſet. When the time of hatching is come, the compoſition will be done, and fit for gilding.

XLI. *To gild on calf and ſheepſkin.*

Wet the leather with whites of eggs. When dry, rub it with your hand, and a little olive oil; then put the gold leaf, and apply the hot iron on it. Whatever the hot iron ſhall not have touched will go off by bruſhing.

XLII. *Gold and ſilver in ſhell.*

1. Take ſaltpetre, gum arabic, and gold leaves, and

waſh them all together in common water. The gold will ſink to the bottom, whence pouring the water off you may then put it in the ſhell.

2 The ſilver is worked in the ſame manner, except the ſaltpetre, inſtead of which you put white ſalt.

XLIII. *To gild marble*

Grind the fineſt bol armenian you can find with lintſeed or nut oil. Of this you lay a coat on the marble, as a kind of gold ſize. When this is neither too freſh, nor too dry, apply the gold; and, when thoroughly dry, burniſh it.

XLIV. *To apply gold on glazed wares, chryſtal, glaſs, china, &c.*

Take a penny-worth of linſeed oil, and as much of gold litharage; a halfpenny worth of umber, and as much of ceruſe. Grind all together on marble; and, with a little hair pencil, dipped into the ſaid colour, draw whatever you will on the above-mentioned wares. As ſoon as dry, lay your gold on it with cotton, which you paſs along your cheek before taking the gold with it. And as ſoon as this is perfectly dry, burniſh it.

XLV. *Matt gold in oil.*

Take yellow ocher, a little umber, white and black lead, which grind all together with greaſy oil, and uſe it when neceſſary.

XLVI. *To dye any metal, or ſtone, gold colour, without gold.*

Grind together into a ſubtile powder ammoniac ſalt, white vitriol, ſaltpetre, and verdigriſe. Cover the metal, or ſtone you want to dye, all over with this powder. Set it, thus covered, on the fire, and let it be there a full hour; then, taking it out, plunge it in chamber lye.

XLVII. *To whiten copper.*

Take one ounce of zinc, one drachm and a third part of it of ſublimed mercury. Grind all into powder, then rub with it what you want to whiten.

XLVIII. *To whiten ſilver without the aſſiſtance of fire.*

Take *Mons-martirum's* talo, which you calcine well in an oven till it can be pulveriſed. Sift it very fine. Then dipping a piece of cloth or ſtuff in it, rub the ſilver with it.

XLIX. *To whiten iron like ſilver.*

Mix ammoniac ſalt's powder, and quick lime, in cold water. Then make your iron red-hot ſeveral times, and, each time, plunge it in that diſſolution. It will turn as white as ſilver.

CHAP. VII.

SECRETS relative to the art of DYING WOODS, BONES, &c.

I. *The compoſition for red.*

1. CHOP Braſil wood very fine, and boil it in common water, till it has acquired an agreeable colour; then ſtrain it through a cloth.

2. Give your wood firſt a coat of yellow, made of ſaffron, diluted in water. Then, the wood being thus previouſly tinged with a pale yellow, and dried, give afterwards ſeveral coats of the Braſil wood-water, till the hue pleaſes you.

3. When the laſt coat is dry, burniſh it with the burniſher, and lay another coat of drying varniſh with the palm of your hand; and you will have a red oranged very agreeable.

4. If you want a deeper red, or rather a darker, boil the Braſil wood in a water impregnated with a diſſolution of alum, or quick lime.

II. *Another red.*

Soak the chopped Braſil wood in oil of tartar; and, with it rub your wood, proceeding for the reſt as above directed.

III. *Another way.*

Pound orchanetta into powder; mix it with oil of nut; make it luke-warm, and rub your wood with it. The reſt as above.

IV. *To die wood in a purpliſh colour.*

Soak Dutch turnſol in water; add a tincture of Braſil wood made in lime water, and you will obtain a purple, with which you may dye your wood, and then burniſh and varniſh as uſual.

V. *A blue purple.*

Take that ſort of German turnſol which painters uſe to paint with ſize. Diſſolve it in water, and ſtrain it through a linen cloth. Give a coat of this dye to the wood; and, if the hue ſeems to you to be too ſtrong, give it another coat of a paler dye, which is done by adding clear water to a part of the other. When dry, burniſh it as uſual.

VI. *Another.*

Four ounces of Braſil, and half a pound of India, woods, boiled together in two quarts of water, with one ounce of common alum.

VII. *A blue for wood.*

Slack lime in water, and decant it out of the ground. In three pints of this water diſſolve four ounces of turnſol, and boil it one hour. Then give ſeveral coats of it to your wood.

VIII. *A green.*

Grind Spaniſh verdigriſe into a ſubtile powder with ſtrong vinegar. Add, and mix well with this, two ounces of green vitriol. Boil all of it a quarter of an hour in two quarts of water, and put your wood a ſoaking in it ſo long as you find the colour to your liking. For the reſt, proceed as above.

IX. *A yellow.*

Diſſolve turnſol in two quarts of water. Then grind ſome indigo on marble with that water, and ſet it in a veſſel on the fire with weak ſize to dilute it. When done, give a coat of this dye to your wood with a bruſh, and when dry, poliſh it with the burniſher.

X. *Another yellow.*

Boil in water ſome grinded *terra merita*, and ſoak your wood in it afterwards.

XI. *Another finer yellow.*

Four ounces of French berries, boiled for about a quarter of an hour in a quart of water, with about the bulk of a filbert of roch-alum. Then ſoak the wood in it.

XII. *To dye wood in a fine poliſhed white.*

Take the fineſt Engliſh white chalk, and grind it in ſubtile powder on marble, then let it dry. Now take what quantity you pleaſe of it, and ſet it in a pipkin on the fire with a weak ſized water, having great care not to let it turn brown. When it is tolerably hot, give firſt a coat of ſize to your wood, and let it dry; then give one or two coats of the aforeſaid white over it. Theſe being dry alſo, poliſh with the ruſhes, and burniſh with the burniſher.

XIII. *To dye in poliſhed black.*

Grind lamp-black on marble with gum water. Put it next in a pipkin, and give a coat of this, with a bruſh, to your wood; then poliſh it when dry.

XIV. *Another way.*

Soak bits of old ruſty iron, ſuch as nails, for example, in the beſt black ink. A few days after rub your wood with it, and when you ſhall ſee it well penetrated with this black, and dry, poliſh it with the burniſher.

XV. *To imitate ebony.*

Infuſe gall-nuts in vinegar, wherein you ſhall have ſoaked ruſty nails; then rub your wood with this; let it dry, poliſh and burniſh.

XVI. *Another way.*

Chuſe a good hard wood, and not veiny, ſuch as pear, apple, or hawthron trees, and blacken them. When black, rub them with a bit of cloth; then, with a reed bruſh, made on purpoſe, dipped in melted wax, mixed in a pot with common black, rub your wood till it ſhines like ebony.

N. B. Before you perform this on your wood, it is proper to rub it ſmooth with the ruſhes, for then you ſucceed better in the imitation of the ebony.

XVII. *Another way.*

The holly is again a very fit ſort of wood to take the dye of ebony. The method of dying it is this. Form it firſt into the ſhape you intend to give it, then put it in a hatter's copper to boil, where you leave it till it has acquired a perfect degree of blackneſs, and is penetrated ſufficiently deep with it, which you know by leaving a little bit in a corner of the copper to cut and make the trial. If the black has got in as deep as a copper halfpenny is thick, take it out and dry it in the ſhade. Then take off the filth of the dye, and poliſh it as you would ebony, with ruſhes, charcoal duſt, and oil of olive.

XVIII. *Another ebony black.*

1. Take India wood cut in ſmall bits, and a little alum; put them in water, and boil till the water looks purple. Give ſeveral coats of this colour on the wood, till it looks purple likewiſe.

2. Next to this, boil verdigriſe in vinegar to the diminution of a third, and give new coats of this over the others on the wood till it looks black.

XIX. *Another way.*

Take mulberry-tree wood, work and ſhape it as it is to ſtay. Then ſoak it for three days in alum water, expoſed to the ſun, or before the fire. Boil it after this in olive water, in which you may put the bulk of a nut of Roman vitriol, and the ſame quantity of brimſtone. When the wood looks of a fine black, take it out, and lay it again in alum-water. When it ſhall have remained there a deſcretionary time, take it out, let it dry, and poliſh as uſual.

XX. *A fine black, eaſily made.*

Take of good ink whatever quantity you like; put it in a ſtone pan, new, and well nealed, then ſet it in the ſun to exſiccate it into a cake. When dry, take and ſcrape it out from the pan with a knife, and grind it into an impalpable powder on marble. This powder, diluted with varniſh, will produce a fine black.

XXI. *To dye wood ſilver faſhion.*

Pound tinglaſs, in a mortar, and reduce it into powder. Add water to it by degrees, with which you continue to pound it, till it comes into a liquid, like colour for painting. Put it in a clean pipkin, with as big as a nutmeg of ſize, and ſet it on the fire to warm. Bruſh your wood with this liquor; and, when it is dry, burniſh it.

XXII. *To dye in gold, ſilver, or copper.*

Pound very fine, in a mortar, ſome roch cryſtal with clear water. Set it to warm in a new pipkin with a little ſize, and give a coat of it on your wood with a bruſh. When dry, rub a piece of gold, ſilver, or copper, on the wood thus prepared, and it will aſſume the colour of ſuch of theſe metals as you will have rubbed it with. After this is done, burniſh it as uſual.

XXIII. *To give a piece of nut, or pear tree, what undulations one likes.*

Slack ſome quick lime in chamber-lye. Then with a bruſh dipped in it form your undulations on the wood according to your fancy. And, when dry, rub it well with a rind of pork.

XXIV. *To immitate the root of nut-tree.*

Give ſeven or eight coats of ſize to your wood, till it remains ſhiny. Then, before your ſize is quite dry, ſtrike here and there a confuſed quantity of ſpots with biſtre grinded with common water. When dry, varniſh it with the Chineſe varniſh.

XXV. *To give a fine colour to the cherry-tree wood.*

Take one ounce of orchanetta; cut it in two or three bits, and put it to ſoak for forty-eight hours in three ounces of good oil of olive. Then, with this oil anoint your cherry-tree wood after it is worked and ſhaped as you intend it: it will give it a fine luſtre.

XXVI. *To marble wood.*

1. Give it a coat of black diluted in varniſh. Repeat it one, two, three, or as many times as you think proper; then poliſh it as uſual.

2. Dilute next, ſome white in a white varniſh made with white gum, or ſhell-lack, and white ſandarac. Lay this white on the black ground tracing with it what ſtrokes and oddities you like. When dry, give a light rub with ruſhes, then wipe it, and give a laſt coat of fine tranſparent white varniſh in order to preſerve the brightneſs of the white. Let this dry at leiſure, then poliſh it.

XXVII. *To immitate white marble.*

Have the fineſt white marble you can find; break and calcine it in the fire. Grind it as fine as you poſſibly can, on a white marble ſtone, and dilute it with ſize. Lay two coats of this on your wood, which, when dry, you poliſh as uſual, and varniſh as before directed.

XXVIII. *To imitate black marble.*

Burn ſome lamp-black in a ſhovel, red hot, then grind it with brandy. For the bigneſs of an egg of black put the ſize of a pea of lead in drops, as much of tallow, and the ſame quantity of ſoap. Grind and mix well all this together; then dilute it with a very weak ſize water. Give four coats of this; and, when dry, poliſh as uſual.

XXIX. *To marble, and jaſper.*

The wood being previouſly whitened with two coats of whitening, diluted in leather ſize, then poliſhed as directed Chap. v. art. 1. n. 2. put on with a pencil what other colours you like, then burniſh it with the burniſhing tooth, which, in doing it, you rub now and then on a piece of white ſoap.

You muſt only take notice, that if you have employed lake, cinabar, orpine, and ſome other colours, they will eaſily receive the burniſhing; but as for the verdigriſe and azure powder, you will find more difficulty to ſucceed in doing it.

As for the jaſper, you muſt only give two or three coats of different colours fancifully drawn and intermixed, chuſing always a green or a yellow for the ground as the moſt proper. And, when with a bruſh of hog's briſtles, you ſhall have laid and variegated all your colours, let the whole dry; poliſh it with ruſhes, and give the laſt coat of white varniſh.

XXX. *For the aventurine.*

Prepare a brown ground colour, with a mixture of vermilion, umber, and lamp-black, and give a firſt coat of this on your wood. According as you ſhould want this ground darker or redder, you may add or diminiſh the quantity of ſome of theſe colours. When theſe coats are dry, poliſh them, then heat them, and give another of a fine and clear varniſh, in which you have mixed the aventurine powder ſifted through a ſilk ſieve. And after the proper time for drying, you may poliſh as uſual.

XXXI. *A counter-faction of coral.*

1. Reduce goat's horns into a ſubtile powder. Put it in a clear lye made of lime and pearl aſhes. Let it there reſt for a fortnight. When reduced into a palp, add cinnabar in powder, or dragon's blood in tears, pulveriſed very fine, in what quantity you may judge neceſſary to give the quantity of matter you have got a fine and perfect coral hue.

2. Next boil this compoſition till it comes very thick; then take it off from the fire and mould it in moulds ſhaped in forms of coral. Or elſe caſt it again in what other ſorts of moulds you like, to make figures of it, and other ſorts of work, which will produce a fine effect.

Obſervation. This ſecret has been worth immenſe ſums of money to him who found it out. The Turks, to whom theſe ſorts of works were carried, paid them magnificently. But this branch of trade was ſoon put to an end by the cheats which were practiſed with the merchants of Tunis and Algiers, who uſed to buy thoſe curioſities.

XXXII. *To ſoften amber, otherwiſe karabe.*

Melt fine white and pure wax in a glaſs veſſel. When melted, put your amber in it, and leave it there till you find it ſoft to your ſatisfaction. Then take it out, and give it what form and ſhape you like. If afterwards you put it in a dry place in the ſhade, it will become as hard as you can wiſh to have it.

XXXIII. *To take the impreſſion of any ſeal.*

1. Take half a pound of Mercury; the ſame quantity of chryſtaline vitriol; as much verdigriſe. Pulveriſe well theſe two laſt ingredients, and put them along with the firſt in a new iron pan, with ſmith's forge water. Stir all well with a wooden ſpatula, till the mercury is perfectly incorporated with the powders. Then waſh that paſte with cold water, and change it till it remains quite clear as when you put it in. Put the lump in the air, it will harden, and you may keep it for uſe.

2. When you want to take the impreſſion of a ſeal with it, take it and place it over the fire on an iron plate. When there appears on it ſome drops like pearls, then it is hot enough ; take it off and knead it in your hands with your fingers, it will become pliable like wax ; ſmoothen one ſide of it with the flat ſide of a knife blade, and apply it on the ſeal, preſſing it all round and in the middle to make it take the impreſſion. When done, lift it up, and ſet it in the air, where it will come again as hard as metal, and will ſerve you to ſeal the ſame letter, after having opened it, with its own coat of arms or cypher, &c. as the original ſeal itſelf, without any probability of diſcovering it, ſhould even the real one be laid on it.

XXXIV. *Another way.*

Heat ſome mercury in a crucible, and ſilver filings in another, in the proportion of two parts of mercury to one of ſilver. As ſoon as the mercury begins to move, pour it on the ſilver filings. Let this cool, and then put it in a glaſs mortar. Pound it well with a peſtle of the ſame, and add a little water in which you ſhall have diſſolved ſome verdigriſe. Stir this, for three days, five or ſix times a day. At the end of the term decant out the verdigriſe water, and replace it with good vinegar, with which you pound it again in the ſame mortar, as before, a couple of hours, changing vinegar as ſoon as it blackens. Pound it again, two other hours, with chamber lye inſtead of vinegar, changing it the ſame, during that time, as you did the vinegar.—Then take that matter, lay it on a waſh-leather ſkin, which you bring up all round it, and tie it above with a ſtring. Preſs the lump well in that ſkin, ſo as to ſeparate and ſqueeze out all the ſuperfluous mercury which paſſes through the leather. And, when none comes out any longer, open the ſkin, take the lump in your hand, and knead it with your fingers, and ſmoothen one ſide of it to take the impreſſion you like, proceeding, for the reſt, as above directed. It hardens in the air, and ſoftens with the heat of the hand, aſſiſted with the working of the fingers, as you would do a piece of wax.

XXXV. *To get birds with white feathers.*

Make a mixture of *ſemper-vivum-majus's* juice, and olive oil, and rub with it the eggs on which the hen is ſetting. All the birds which ſhall come from thoſe eggs will be white feathered.

XXXVI. *To ſoften ivory.*

In three ounces of ſpirit of nitre, and fifteen of white wine, or even of mere ſpring-water, mixed together, put your ivory a-ſoaking. And, in three or four days, it will be ſo ſoft as to obey under the fingers.

XXXVII. *To dye ivory, thus ſoftened.*

1. Diſſolve, in ſpirit of wine, ſuch colours as you want to dye your ivory with. And when the ſpirit of wine ſhall be ſufficiently tinged with the colour you have put in, plunge your ivory in it, and leave it there till it is ſufficiently penetrated with it, and dyed inwardly. Then give that ivory what form you will.

2. To harden it afterwards, wrap it up in a ſheet of white paper, and cover it with decrepitated common ſalt, and the drieſt you can make it to be; in which ſituation you ſhall leave it only twenty-four hours.

XXXVIII. *Another way to ſoften ivory.*

Cut a large root of *mandrake* into ſmall bits, and infuſe firſt, then boil it, in water. Put your ivory in this boiling liquor, and boil it too, till it is as ſoft as wax.

XXXIX. *Another way.*

1. Take one pound of black alicant kaly, and three quarters of a pound of quick lime, which you put into boiling water, and let it reſt for three days. If, after that term, the liquor is reddiſh, it is ſtrong enough; if not, you muſt add again of the above ingredients, till it acquires that degree.

2. Then putting a ſoaking in this lye any bone, or ivory, for a fortnight, they will become as ſoft as wax.

3. To harden them afterwards, diſſolve an equal quantity of alum and ſcuttle fiſh-bones powder, in water, which you boil to a pellicula; ſoak your bones or ivory in this for about one hour only; then take them out, and put them in a cellar for a few days.

XL. *To whiten ivory, which has been ſpoiled.*

Take roch-alum, which you diſſolve in water, in a ſufficient quantity, to render the water all milky with it. Boil this liquor into a bubble, and ſoak your ivory in it for about one hour, then rub it over with a little hair bruſh. When done, wrap it in a wet piece of linen to dry it leiſurely and gradually, otherwiſe it would certainly ſplit.

XLI. *Another way.*

Take a little black ſoap, and lay it on the piece of ivory. Preſent it to the fire, and when it has bubbled a little while, wipe it off.

XLII. *To whiten green ivory; and whiten again that which has turned of a brown yellow.*

1. Slack ſome lime into water, put your ivory in that water, after decanted from the ground, and boil it till it looks quite white.

2. To poliſh it afterwards, ſet it on the turner's wheel, and after having worked it, take ruſhes and pumice-ſtones ſubtile powder with water, and rub it till it looks all over perfectly ſmooth. Next to that, heat it, by turning it againſt a piece of linen, or ſheep's-ſkin leather, and, when hot, rub it over with a little whitening diluted in oil of olive continuing turning as before; then with a little dry whitening alone, and finally with a piece of ſoft white rag. When all this is performed as directed, the ivory will look as white as ſnow.

XLIII. *To whiten bones.*

Put a handful of bran and quick-lime together, in a new pipkin, with a ſufficient quantity of water, and boil it. In this put the bones, and boil them alſo till perfectly freed from greaſy particles.

XLIV. *To petrify wood, &c.*

Take equal quantities of gem-ſalt, roch-alum, white vinegar, calx, and pebbles powder. Mix all theſe ingredients together, there will happen an ebullition. If, after it is over, you throw in this liquor any porous matter, and leave it there a ſoaking for three, four, or five days, they will poſitively turn into petrifications.

XLV. *To*

XLV. *To immitate tortois-ſhell with horn.*

Take one ounce of gold litharage, and half an ounce of quicklime. Grind well all together, and mix it to the conſiſtence of pap, with a ſufficient quantity of chamber-lye. Put of this on the horn; and, three or four hours afterwards it will be perfectly marked.

XLVI. *A preparation for the tortois-ſhell.*

Make a mixture, as above, of quick lime, orpine, pearl aſhes, and *aquafortis*. Mix well all together, and put your horn, or tortois-ſhell, a-ſoaking in it.

XLVII. *To dye bones in green.*

Grind well a diſcretionable quantity of verdigriſe, which you put with vinegar in a copper veſſel, and the bones in it. Cover this, and lute it ſo well that no air can come at the contents. Put it in hot horſe dung, and leave it there for a fortnight, after which time take your bones out; they will be coloured of a fine green, which will never rub off.

XLVIII. *Another way.*

1. Put ſome verdigriſe, well grinded, in goat's milk, and leave it till the milk becomes very green. Then put all together in a copper veſſel along with the bones; cover and lute it well, then place it in hot horſe dung for ten days, after which time you may take the bones out perfectly well coloured.

2. If you will have them more ſo, boil them in oil of nut; and the longer they boil in it, the more they will heighten in colour.

3. To poliſh them, you muſt uſe elder's marrow: and luſtre them with oil of nut.

XLIX. *To dye bones, and mould them in all manner of ſhapes.*

1. Boil together twelve pounds of quick lime, and one of calcined roch-alum, in water, to the reduction of one third of the water you ſhall have put in. Add, then, two more pounds of quick lime, and boil it again till it can carry an egg, without its ſinking to the bottom. Now let it cool and reſt, then filter it.

2. Take twelve pounds of that liquor; put in half a pound of raſped Braſil wood, and four ounces of ſcarlet

flocks; boil all about five minutes on a ſlow fire, then decant the cleareſt part of it, and put it by. Put on the *fæces* of braſil and ſcarle tabout four pounds of the firſt water; boil it the ſame length of time as the other, and decant likewiſe the cleareſt part of it on the other. Repeat this operation, till the new added water draws no more colour from the *fæces*.

3. Now raſp any quantity of bones, and boil them, when raſped, a reaſonable time in clear lime water. Then take them out. Put them in a matraſs; and, over them, pour ſome of the tinged water, ſo as to ſoak them only with it. Place the matraſs on a mild ſand bath, and evaporate the liquor. Add ſome more liquor, and evaporate it again the ſame, continuing to add and evaporate the tinged liquor, till the raſped bones are all turned into a ſoft paſte.

4. Take this paſte, and mould it as you like, in tin or other moulds, to make whatever thing or figure you want. Set it in the mould for a day or two, till it has acquired the ſhape you would have it; then, to harden it, boil it in a water of alum and ſaltpetre firſt, and afterwards in oil of nut. Nothing more ſurpriſing, and at the ſame time more agreeable, than theſe figures, which look inconteſtibly to be made of bones, without conceiving how they can be made ſuch, out of that matter, and in one ſolid piece.

L. *To dye bones in black.*

Take ſix ounces of litharage, and the ſame quantity of quick lime. Boil all in common water, along with the bones. Keep always ſtirring, till the water begins to boil. Then take it out, and never ceaſe ſtirring till the water is cold again; by that time the bones will be dyed black.

LI. *To ſoften bones.*

Take equal parts of Roman vitriol and common ſalt. Diſtil the ſpirits out of this by the alembic, or rather, by the retort. If in the water you get from the diſtillation, you put the bones a-ſoaking, they will become as ſoft as wax.

LII. *To dye bones in green.*

Pound well together, in a quart of ſtrong vinegar, three ounces of verdigriſe, as much of braſs filings, and a handful of rue. When done, put all in a glaſs veſſel, along with the bones you want to dye, and ſtop it well. Carry this into a cold cellar, wherein leaving it for a fortnight, or even more, the bones ſhall be dyed green.

LIII. *A ſalt for hardening ſoft bones.*

Take equal quantities of ammoniac, common decrepitated and gem ſalts, as well as of *plumeum*, *ſaccarinum*, rock and ſhell alums. Pulveriſe, and mix all together; then put it in a glaſs veſſel well ſtopped, which bury in hot horſe dung, that the matter ſhould melt into water. Congeal it on warm embers. Then make it return into a *delequium* again, by means of the horſe dung, as before. When thus liquified for the ſecond time, it is fit for uſe. Keep it. and when you want to harden and conſolidate any thing, ſmear it over with it.

LIV. *To make figures, or vaſes, with egg-ſhells.*

1. Put in a crucible any quantity of egg ſhells, and place it in a potters furnace, for two days, that they may there be perfectly calcined; then grind them dry into a ſubtile powder.

2. Next, with gum arabick-water, and whites of eggs beaten together, make a liquor, with which you are to knead that powder, and make a paſte or dough of it.

3. With that dough, to which you give the conſiſtence of potters clay, make and form whatever figure or vaſe you like, and ſet them in the ſun to dry.

LV. *To dye bones and ivory of a fine red,*

1. Boil ſcarlet flocks in clear water, aſſiſted with a certain quantity of pearl aſhes, to draw the colour the better; then clarify it with a little roch-alum, and ſtrain this tincture through a piece of linen.

2. To dye, afterwards, any bones or ivory in red, you muſt rub them firſt with *aquafortis*, and then immediately with this tincture.

LVI. *To make a paſte in imitation of black marble.*

Diſſolve two ounces of ſpalt, on a gentle fire, in a glazed pipkin. When in perfect fuſion, add a third part of karabe, which you muſt keep there ready melted for it, and ſtir all well together. When both ſhall be well mixed and united, take the pipkin off from the fire, and throw the contents, boiling hot as they are, into a mould of a fine poliſh in the inſide. Then, when cold and dry, take the piece off from the mould, and you will find that nothing can imitate ſo well black marble as this deceptive compoſition, except black marble itſelf.

LVII. *A receipt to dye marble, or alabaſter, in blue or purple.*

1. Pound together, in a marble mortar, parſnips and purple lilies, with a ſufficient quantity of white-wine vinegar. Proportion the quantity of parſnips and lilies to each other, according to the hue you wiſh to give the liquor. If you cannot get one of theſe two juices, make uſe of that you can get; and to every one pound of liquor, mixed and prepared, put one ounce of alum.

2. In this dye, put now your pieces of marble, or alabaſter, and boil them, ſuppoſing that they are not too conſiderable to go into the veſſel with the liquor. And if they be, you muſt heat one part of it as much as you poſſibly can, then dye it with the liquor quite boiling hot, and thus proceed from place to place, till you have dyed it all over.

LVIII. *To bronze wooden, plaſter, ivory, or other figures, ſo that the bronze may ſtand water for ever.*

1. Grind Engliſh brown red, as fine as poſſible with nut oil. With this, paint all over the figure intended to be bronzed, and let it dry.

2. Have next ſome powder of German gold in a ſhell; and, in another, ſome of the varniſh deſcribed in the following article. Dip a pencil in the varniſh, and then in the gold, and give as ſmooth and equal a coat of this to your figure as you can.

3. For ſaving expence, you may inſtead of the German gold, take ſome fine bronze, which is a good deal cheaper.

LIX. *The varniſh fit for bronzing.*

Pound, into ſubtile powder, one ounce of the fineſt ſhell-lac. Put it in a glaſs matraſs of three half pints ſize. Pour upon it half-a-pint of the beſt French ſpirit of wine. Stop it well, and place it in the cool for four days, that the lac may have time to diſſolve at leiſure. During that time, neglect not to ſhake the matraſs, as if you were waſhing it, four or five times a-day, for fear the lac ſhould make a glutinous lump, and ſtick to the bottom of the matraſs. Should your lac, at the end of thoſe four days, be yet undiſſolved, ſet it on a gentle ſand-bath, to help finiſhing it; and, when diſſolved to perfection, the varniſh it done.

Note. When you pour the ſpirit of wine on the lac in the matraſs, obſerve to do it gently, and little at a time, in order it may penetrate the powder the better. Obſerve alſo to ſtop pouring by intervals, at different times, and take the matraſs and ſhake it as it were for rinſing, in order to mix all well, thus continuing to do till you have introduced all the ſpirit of wine into the lac.

LX. *A water to dye bones and wood.*

1. Put the ſtrongeſt white-wine vinegar in an earthen pan, in which ſet to infuſe, for ſeven days, copper filings, Roman vitriol, roch-alum, and verdigriſe.

2. In this liquor, put a-boiling what you want to dye, and it will take the colour perfectly.

3. If you want a red dye inſtead of verdigriſe, put ſome red; if yellow, put yellow, and ſo forth, according to the various colour you may require, with a diſcretionable quantity of roch-alum for either.

LXI. *To dye bones and ivory an emerald green.*

Put in *aquafortis* as much *flos æni* as it can diſſolve; and in that water put a-ſoaking, for twelve hours only, whatever you want to dye, and they will take the colour to perfection in that ſpace of time.

LXII. *To dye bones any colour.*

Boil the bones firſt for a good while; then in a lye of quick lime mixed with chamber lye, put either verdigriſe or red or blue chalk, or any other ingredient fit to procure the colour, you want to give to the bones. Lay the bones in this liquor, and boil them, they will be perfectly dyed.

LXIII. *To whiten alabaſter and white marble.*

Infuſe, for twelve hours, ſome ſubtile pumice ſtone's powder in verjuice; then, with a cloth, or a ſponge, wet your marble with the liquor, and it will become perfectly white.

LXIV. *To blacken bones.*

Mix charcoal duſt with wood-aſhes and water; rub the bone with this waſh, then with ink; and, when dry, poliſh it.

LXV. *Another way to dye woods and bones red.*

Infuſe for twenty-four hours your wood in red-wine vinegar. Then add to this vinegar a ſufficient quantity of Braſil wood and roch-alum, both in powder, and boil all altogether, till you ſee the wood, or bones, have acquired the degree of colour you wiſh to have them.

LXVI. *The ſame in black.*

After the twenty-four hours infuſion as above, add to the vinegar a ſufficient quantity of vitriol, orpine, pomegranates' rinds, and gall-nuts, all in powder, and boil as before directed.

LXVII. *For the green.*

Supply for the above ingredients, two parts of roch-alum, and one of *alumen plumeum*, with which you boil the wood or bones to the reduction of two thirds, or thereabouts; then put them a-ſoaking in a lye of ſoap and verdigriſe, in a ſufficient quantity, till they are perfectly green.

LXVIII. *To dye wood vermilion colour.*

Smoothen and rub well the wood firſt; then give it four or five coats of vermilion ſubtilely pulveriſed, and diluted with lime and curd-cheeſe water.—When dry, poliſh it over again with ruſhes and oil of ſpike; then for the laſt, give it four or five coats of varniſh, made with karabe and oil of ſpike, and let it dry.

LXIX. *To ſoften horn, ſo that you may caſt it in a mould as melted lead.*

Make a ſtrong lye with equal quantities of pearl aſhes and quick lime. Raſp your horns, and put theſe raſpings in that lye. They will ſoon turn into a pap. Then put in this pap whatever colour you like, and caſt it in whatever mould you chuſe.—To dry and harden theſe figures afterwards follow the directions preſcribed in Art. xlix. at the bottom, and in liii.

CHAP. VIII.

CHAP. VIII.

SECRETS relative to the ART of CASTING in MOULDS.

I. *To caſt a figure in bronze.*

1. TO caſt a figure, or any other piece in bronze, you muſt, firſt, make a pattern with a proper clay. That clay ought to be mixed with ſand, to prevent its cracking, when it comes to dry.

2. When the pattern is completed and the ſculptor is pleaſed with his work, you mould it with plaiſter while it is ſtill damp, becauſe in drying, the parts of the pattern ſhrink, and loſe their fullneſs. To that effect you begin by the bottom part of the figure, which you cover with ſeveral pieces, and by rows; as for example, let us ſuppoſe the firſt row from the feet to the knees; the ſecond from the knees to the beginning of the belly; the third from the beginning of the belly up to the pit of the ſtomach, from thence to the ſhoulders, on which you lay the laſt row, which is to contain the head—Obſerve, however, that thoſe diviſions of rows admit of no particular rule, and ought to be intirely determined by, and adapted to, the ſize of the figure. For when the pieces are made too conſiderable, the plaiſter works too much, and fatigues itſelf, which is detrimental to its taking a true and preciſe impreſſion of all the turns and ſhapes of the figure. So that at any rate, it is always preferable to make the pieces of the mould ſmaller than larger.

3. You muſt obſerve, that if the figure you are moulding have got any draperies, or other ſorts of ornaments about it, which require a good deal of trouble and nicety, you cannot help making a great many ſmall parts and ſubdiviſions in your mould, in order to enable you to ſtrip them off the figure afterwards with more facility. In which circumſtance, when all theſe ſmall parts are made, and garniſhed with little rings to aſſiſt in pulling them off more eaſily, you cover them all

over with larger pieces, which containing ſeveral of the little ones, are called *caſes*, and in French *chapes*.

4. When the mould is thus made and completed, you let it reſt till it is perfectly dry. Then, before uſing it, they who are curious in their work, do not content themſelves with imbibing it inwardly with oil, but they even make it drink as much wax as it can ſoak, by warming thoſe ſeparate pieces, and putting wax in them to melt. —The motive, in doing this, is to render the wax-work, which is to be caſt in it finer and more perfect. For if you imbibe the mould with oil only, the wax figure caſt in ſuch a mould always comes out a little rough and like flour, becauſe the wax draws always the ſuperficy of the plaiſter, and in reverſe, the plaiſter draws alſo the ſuperficy of the wax, which produces a great defect in the figure, and is a great obſtacle to its coming out from the mould with that neatneſs it otherwiſe ſhould.

5. The mould being therefore thus imbibed with wax, if you want it for a bronze figure, you aſſemble all the ſmall parts of it each in their caſes, and with a bruſh give them a coat of oil. Then, with another bruſh, give them another coat alſo of wax, prepared as follows.—Six pounds of wax, half-a-pound of hog's lard, and one pound of Burgundy pitch.—This preparation of the wax, however, muſt be regulated according to the country and the ſeaſon. For in the heat of ſummer, or hot climes, ſuch as Spain, Italy, and France, wax may be uſed alone, as it keeps naturally ſoft, and the other drugs above-mentioned, are added to it only to render it more tractable. Of this wax, therefore, whether prepared or natural, you lay another coat, as we ſaid, in the hollow of the mould, to the thickneſs of a ſixpenny piece. Then, with wax made in flat cakes, of the thickneſs of a quarter of an inch, more or leſs, according to that you are willing to give your metal, you fill all the hollow parts of the mould in preſſing hard this ſort of wax in them with your fingers. When thus filled, you have an iron grate, larger by three or four inches every way than the plinth or baſis of the figure. On the middle of that grate you erect one or more iron

bars, contoured agreeable to the latitude and ſituation of the figure, and bored, from ſpace to ſpace, with holes to paſs other iron rods of the ſize and length neceſſary to ſupport the *core* (in French *ame* or *noyau*) of what you want to caſt.

6. Formerly they uſed to make their *cores* with potter's clay mixed with hair and horſe-dung well beaten together. With this compoſt, they formed a figure like the pattern; and, when they had well ſupported it with iron bars, length and croſs-ways, according to its poſition and attitude, they ſcraped it, that is to ſay, they diminiſhed, and took off from its bigneſs as much as they wanted to give to their metal. When that *core* was dry, they took the wax with which they had filled the hollow parts of their mould, and covered it with them ——This method is even practiſed now by ſome founders, eſpecially for great bronze figures, becauſe earth reſiſts better the power of that red-hot melted metal, than plaiſter can; and this they reſerve only for ſmall figures, and thoſe which are caſt in gold or ſilver. However, when plaiſter is well beaten and mixed with brick duſt alſo well beaten and ſifted fine, it ſtands pretty well too. We ſhall therefore proceed on the method of caſting on plaiſter cores.

7. You take then the firſt, or bottom rows, of the mould, filled by the laſt wax in cakes, as mentioned before, and aſſemble them on the iron grate round the principal iron bar, which is to ſupport the *core* when made. When they are joined together, you give them a tye round very hard with cords, leſt they ſhould vary from their poſition when you form the *core*.

8. To form this, as ſoon as the firſt ſet which completes the bottom row of the ſeparate pieces of the mould is fixed, you pour plaiſter, diluted very clear, and mixed, as we ſaid, with brick-duſt, with which you fill up that bottom part of the hollow. Then, on this firſt bottom row of the mould, you place the ſecond in the ſame manner as the firſt; then fill it likewiſe with your prepared plaiſter. Thus you continue to erect your mould from row to row, till you come to the laſt, and fill it as you go, with plaiſter, which is called *form*-

ing the core. If the figure require it, you paſs acroſs the core ſome iron rods through the holes perforated for that purpoſe in the perpendicular bars, in order to ſupport the *core* the better, and give it more ſtrength and power to reſiſt the effort of the metal when it comes in fuſion upon it.

9. When all the pieces of the mould have been thus erected one upon another, and filled with plaiſter, you muſt ſtop a certain time to let it take a conſiſtence, then proceed to take off the caſes and all the ſmaller parts of the mould contained in each of them, row by row, and one by one, in the ſame manner as you proceeded to erect them, with this difference, that in erecting them you begin at the bottom, and that in taking them off, you begun at the top; which, when done, leaves the figure to appear all in wax, covering the *core*, which is contained in the inſide of it.

10. You are then to proceed to the repairing of the figure, and finiſh it after the original. The ſculptor, in that caſe, has even an opportunity of perfecting much ſome of the parts, in adding or taking off according as he thinks proper, to give more grace and expreſſion to certain ſtrokes, muſcles, or features only; as for the diſpoſition of the limbs, and their attitude, he can no longer mend or alter them.

11. The figure thus well prepared, you are to place what is called the *pouring* and the *vent holes*. The *pouring holes* are wax-pipes of the bigneſs of an inch diameter for ſuch figures as are of a natural ſize; for they are to be proportioned not only to the ſize of the figure, but even to that of the parts of that figure whereon they are placed. The *vent-holes* are wax-pipes likewiſe, but of much leſſer ſize. Thoſe pipes are caſt in plaiſter moulds of what length you pleaſe, then cut to that of four or five inches, or thereabouts. They are caſt hollow, to the intent of rendering them lighter, otherwiſe they might as well be caſt ſolid. Thoſe which ſerve for pouring, are placed in a ſtraight perpendicular line, one above another, at ſix inches aſunder, and ſometimes nearer, when there are draperies, and much matter is uſed.

12. When the various pipes are placed and ſoldered againſt the figure, with wax, ſo that the end which is free ſhould be upwards, and as much perpendicular to the figure as poſſible, you place another pipe of the ſame ſize quite perpendicular, which is to be fixed againſt every one of the ends of the others. All theſe pipes, both large and ſmall, ſerve for the pouring of the matter, and caſting of the figure. You are to place three or four of them generally round the figure, which is determined by its ſize, bulk, and diſpoſition.

13. But at the ſame time you are placing the pouring-holes, you muſt not neglect placing alſo thoſe which are to ſerve for the vent. Theſe laſt are to be placed in the ſame line as and with the others, at the diſtance of four inches only from them, and fixed likewiſe by one end to the figure, and by the other to another long and perpendicular pipe, like thoſe for pouring. Now, as it is neceſſary that all the wax, when you come to melt it, ſhould, as we ſhall mention in its place, come out entirely from the mould, you muſt not fail to place thoſe ſorts of vent-pipes on all the riſing and diſtant parts from the mean bulk of the figure, ſuch as the arms, fingers, draperies, &c. &c. from which the wax muſt be got out with facility, either by means of particular vent-holes, ſo formed as to deſcend to the bottom of the figure, or by means of thoſe large ones placed perpendicularly along-ſide of it.—Obſerve, always, to make the pouring-holes which come to the face and hands the ſmalleſt of any, that they may not affect too much the features and likeneſs, if any be intended, of thoſe parts; and that you may the more eaſily repair thoſe places with the chiſel, when they are finiſhed.

14. After theſe various pipes have been thus carefully fixed all about the figure, you muſt ſo place them that two of the main perdendicular ones ſhould join together at five or ſix inches higher, and above the upper part of it, and be terminated by a wax cup of four inches deep, and as much diameter, under, and at the bottom part of which you ſolder them. This cup ſerves as a funnel to receive the metal, and introduces it into the pouring-holes, by means of its communication

with them, to convey it afterwards into all the parts of the figure at once, and form it. Therefore, if there be four perpendicular aſcending pipes, you make two ſuch cups, to communicate the metal to theſe pipes.

15. As for the vent-holes, you let them free above the top of the figure, and higher than the pouring ones, becauſe they want no cups.

16. When the wax figure is thus completely repaired and garniſhed, with all its pouring and vent-holes, you prepare a compoſition of putty, and crucibles' powder, well grinded, and ſifted very fine, which you dilute clear in a pan, like a colour for painting. With a bruſh take this compoſition, and cover all the figure, as well as the vent and pouring-pipes. This operation you repeat ſeveral times, obſerving carefully to fill up all the cracks and crevices which may happen in drying. When the wax is thus perfectly covered every where, you put with the ſame bruſh, another compoſition thicker than the firſt, and of a ſtronger ſort.

17. This compoſition is made of the ſame materials as the other, but with this addition, that you mix ſome free earth along with it, and horſe-dung, quite clear from any ſtraw. After having given ſix or ſeven coats of this, you give another coat again, much thicker ſtill, of a ſtuff compoſed of nothing but free earth and horſe-dung, and this being dry, you give half-a-dozen more of the ſame, allowing time between each to dry. At laſt, you put with your hand, and no more with the bruſh, two other coats of this ſame laſt compoſition, of free earth and horſe-dung, mixed in form of mortar, obſerving always that the one ſhould be perfectly dry, before laying on the other; and that there ſhould be no part of the figure, whether naked or draperies, but what is equally covered with every one of the different coats we have mentioned.

18. Next to this, you muſt have flat iron bars turned and bent according to the diſpoſition of the figure, which being fixed by means of hooks at the ſides of the grate on which it ſtands, riſe up as high as the pipes, and joining cloſe to the mould, unite at top by means of a circle of iron which runs through all the

hooks, by which theſe bars are terminated. Then you ſurround again the figure with other iron-bars, made in form of hoops, to prevent the others which go from top to bottom, and to which they are fixed by means of wires, from giving way; and, between every one of theſe bars, both perpendicular and horizontal, there muſt be no more than ſeven or eight inches diſtance allowed.

19. When all theſe bars are well fixed together, and enabled thereby to ſupport and contain the mould, you take a compoſt of free earth, horſe-dung and hair mixed together, in conſiſtence of mortar, and with this you cover the mould and the bars all over, without attending any more to the ſhape of the figure, ſo that there appears no more but a ſhapeleſs lump of clay, which ought to be of about four or five inches thick.

20. When the mould is thus completed, you are to dig a ſquare pit ſufficiently deep for the top of the mould to be ſomewhat lower than the ſuperfice of the ground where the pit is dug, and ſufficiently wide alſo to allow room of a foot and a half, free all round the mould, when deſcended into it.—At the bottom of that pit, you conſtruct a furnace, on the top of which there is to be a ſtrong iron grate ſupported by the arches and wall of the furnace, which is to be made of ſtone or bricks, as well as the four ſides of the pit from top to bottom.

21. After the grate is placed on the furnace, you deſcend the mould on it by means of engines. Then, under the pipes which are to ſerve for pouring, as well as vent, you place pans to receive the wax which is to run off. This done, you light a middling fire to heat the figure, and all the place where it ſtands, with ſo moderate a heat, that the wax may melt without boiling, and come entirely out from the mould, without there remaining any part of it; which would not be the caſe if the heat be ſo great as to make it boil, for then it would ſtick to the mould, and cauſe defects in the figure, when you come to run the metal.——When, therefore, you judge that all the wax is out, which you may know by weighing that you employed, and weigh-

ing it again after it is in the pans, you take theſe off, and ſtop the pipes, through which it came out, with clay. Then fill all the empty parts of the pit round the figure with bricks, which you throw in gently, but without order; and, when it is come up to the top, make a good briſk fire in the furnace. As the flame is interrupted by theſe bricks, it cannot aſcend with violence, nor hurt the mould, and they only communicate their heat in going through all thoſe bricks, which become ſo hot, that they and the mould are at laſt both red hot.

22. Twenty-four hours after the fire has been lighted, when you ſee that the bricks and the mould are equally red hot from top to bottom, you let the fire go out, and the mould cool, by taking all the bricks off. When there is no more any heat at all, you throw ſome earth in the pit, to fill the place which had been occupied with the bricks; and, in proportion as you throw it in you tread it with your feet, and preſs it againſt the mould.

23. In order to melt the metal, you conſtruct, juſt by the pit where the mould is, a furnace, the lower part of which ought to be higher by two or three inches than the top of the ſaid pit, in order to obtain a ſufficient declivity from it to the pit for the running of the metal. Its conſtruction muſt be after the form of an oven, with good bricks and free earth, and ſupported by good and ſtrong iron hoops. There is a border raiſed all round, ſo as to make it capable to contain all the metal which is intended to be melted in it. On the ſide which looks towards the pit, there is an opening, which is ſtopped during the melting of the metal, and from that opening comes an earthen funnel practiſed, which goes to a baſon of good free earth placed over the mould, and the middle of which correſponds and communicates to thoſe cups we have mentioned before (No. 14). This baſon is called by the workmen *eſcheno*. And in order to prevent the metal from running into theſe cups before the whole which is in the furnace is run into the *eſcheno*, there are men on purpoſe who hold a long iron rod ter-

minated by one end in the form of theſe cups, and ſtop them.

24. When the metal is melted, you unſtop the opening of the furnace in which it is contained; this runs into the *eſcheno*, and as ſoon as it is arrived, the men take off the rod with which they ſtopped the cups, and the mould being inſtantly filled all over, the figure is formed in one moment.

25. After the mould is thus filled with the metal, you let it ſtay in that ſituation for three or four days, then, at leiſure, you take off the earth which had been thrown all round it, which helps the mould to become entirely cold. As ſoon as you are ſure there is no more heat, you break the mould, and the metal figure appears ſurrounded with rods of the ſame metal, ſtarting out from it, occaſioned by the vent and pouring-holes, or pipes, through which the metal was introduced, and which remained filled with it. Theſe you muſt ſaw off, in order to unburden the figure of ſo much, and get it out of the pit more eaſily. Then you clean and ſcower with water and grinding-ſtone in powder, and pieces of deal or other ſort of ſoft wood, and you ſearch in all the hollow places of the draperies and other parts.

26. When the figures are ſmall, they are generally waſhed with *aquafortis*; and, when it has operated, you may waſh them again with common water. When they are thus well cleanſed, you repair, finiſh, and fault thoſe which require to be treated more highly than others; for the large ones are ſeldom ſearched ſo minutely.

27. After they have been as much finiſhed as they are intended to be, you may give them, if you like, a colour, as ſome do, with oil and blood-ſtone. Or, as ſome others practiſe it, you may make them turn green by means of vinegar. But without all that trouble, the bronze will in time take a natural varniſh of itſelf, and becomes of a blackiſh hue.

II. *How to gild ſuch ſorts of figures.*

1. They may be gilt two different ways; either with gold in ſhells, or with gold in leaves. The firſt method is the handſomeſt, and at the ſame time the moſt laſting, it being always uſed for ſmall ſized works. To apply

it, you make a mixture of one part of the beſt gold, and ſeven of mercury, which founders call ſilver in that ſort of proceſs. When theſe are incorporated together, you then heat the figure, and rub it with the compoſition, which whitens it, and heating it again over the fire the mercury exhales, and the figure remains gilt.

2. As for the other method it is only for large ſized works, and them on which one is not willing to make a great expence; you ſcrape the figure with ſmall files, and other proper tools, to make it quick and clean, then you heat and lay on a gold leaf, repeating this four times.

III. *Of the choice and compoſition of metals.*

Any metal whatever may be uſed for the caſting of figures, though the general compoſition runs as follows.

1. For the fine bronze figures, the alloy is half braſs, half copper. The Egyptians who are ſaid to be the inventors of that art uſed to employ two thirds of braſs againſt one of copper.

2. Braſs is made with copper and calamine. One hundred weight calamine renders one hundred *per cent.* Calamine is a ſtone from which a yellow dye is drawn. It is to be found in France and at Liege.

3. Good copper ought to be beaten, not molten, when intended for ſtatues. You muſt guard alſo againſt uſing putty, when in alloy with lead.

4. Copper may be forged either hot or cold. But braſs breaks when cold, and ſuffers the hammer only when hot.

5. There is a ſort of metalic ſtone called Zinc, which comes from Egypt: it renders the copper of a much finer yellow than the calamine; but, as it is both dearer and ſcarcer, they are not ſo ready to uſe it.

6. As for the compoſition for making of bells, it is twenty pounds weight pewter for each hundred of copper. And the artillery pieces take but ten pounds only of pewter to one hundred of the other. This laſt compoſition is not good for the caſting of figures, as it is both too hard and too brittle.

CHAP. IX.

SECRETS relative to WINE.

I. *To make a wine to have the taſte and flavour of French muſcat.*

YOU have only to put in the caſk a little bag of elder flowers when the wine is juſt done preſſing, and while it boils ſtill. Then, a fortnight after, take out the bag.

II. *To make the* vin-doux.

When you caſk the wine put in at the bottom of the caſk half a pound of muſtard ſeed, or a pound, if the caſk be double the common ſize.

III. *To make* vin-bourru, *of an excellent taſte.*

Take two quarts of wheat, which boil in two quarts of water till it is perfectly burſted. Stir it well, then ſtrain it through a fine cloth, ſqueezing a little the whole to get the creamy part out. Put two quarts of this liquor in a hogſhead of white wine, while it is ſtill a-boiling or in fermentation, with the addition of a little bag of dried elder-flowers.

IV. *To imitate a* malvoiſie.

Take of the beſt galangal cloves and ginger, each one drachm. Bruiſe them coarſely, and infuſe for twenty-four hours, with brandy, in a well cloſed veſſel. Then take theſe drugs out, and having tied them in a linen bag. let them hang in the caſk by the bung-hole. Three or four days after, your wine will taſte as good and as ſtrong as natural *malvoiſie*.

V. *To change red wine into white, and white into red.*

If you want to make red your white-wine, throw into the caſk a bag of black vine-wood aſhes; and to whiten the red wine, you muſt put a bag of white vine-wood aſhes. Forty days after, take out the bag, ſhake the caſk, and let it ſettle again; then you will ſee the effect.

VI. *To prevent wine from* fuſting, *otherwiſe taſting of the caſk, and to give it both a taſte and flavour quite agreeable.*

Stick a lemon with cloves as thick as it can hold; hang it by the bung-hole in a bag over the wine in the caſk for three or four days, and ſtop it very carefully for fear of its turning dead, if it ſhould get air.

VII. *To make a vine produce a ſweet wine.*

One month before gathering the grapes, you muſt twiſt ſuch branches as are loaded with them, ſo as to interrupt the circulation of the ſap: then ſtrip the leaves off intirely, that the ſun may act with all its power on the grains, and, by diſſipating their ſuperfluous moiſture, procure a ſweetneſs to the liquor contained in them when they come to be preſſed.

VIII. *To make a ſweet wine of a very agreeable flavour, and beſides very wholeſome.*

Gather the grapes, and expoſe them for three whole days in the ſun. On the fourth day at noon put them under the preſs, and receive the firſt drop which runs of itſelf before preſſing. When this virgin-drop ſhall have boiled, or fermented, put to every fifty quarts of it one ounce of Florentine-orrice in ſubtile powder. A few days after take it out clear from its lye, and then bottle it.

IX. *To clarify in two days new wine when muddy.*

Take a diſcretionable quantity of fine and thin beech ſhavings, which put into a bag, and hang by the bung hole, in the caſk. Two days after, take out the bag; and if from red you want to make it white, you may do it by putting in the caſk a quart of very clear whey.

X. *To make the wine keep* mout *or* unfermented *for twelve months.*

Take the firſt, or virgin wine, which runs of itſelf from the grapes before preſſing; caſk and ſtop it well, then ſmear the caſk all over with tar, ſo that the water could not penetrate through any part of the wood into the wine. Plunge theſe caſks into a pond deep enough to cover them intirely with water, and leave them there for forty days. After which term you may take them out, and the wine contained in them will keep new for twelve months.

XI. *To make a wine turn black.*

Place in the cellar, wherein the wine is a-fermenting, two pewter pots, and it will turn black.

XII. *To clarify a wine which is turned.*

Take clean roch-alum in powder, half a pound: ſugar of roſes, as much; honey whether ſkimmed or not eight pounds, and a quart of good wine. Mix all well, and put it in a caſk of wine, ſtirring all as you pour it in. Take the bung off till the next day, then put it on again. Two or three days after this, it will be quite clear.

XIII. *To correct a bad flavour in wine.*

Put in a bag a handful of garden parſley and let it hang by the bung hole in the caſk, for one week at leaſt. Then take it out.

XIV. *To prevent wine from ſpoiling and turning.*

Mix in the caſk a tenth part of brandy, or half an ounce of oil of ſulphur.

XV. *To prevent thunder and lightning from hurting wine.*

Put on the bung a handful of ſteel filings and another of ſalt, tied up in a bag.

XVI. *To prevent wine from corrupting.*

Put to infuſe in the caſk a handful of gentian root tied in a bag.

XVII. *To reſtore a wine turned ſour or ſharp.*

Fill a bag with leek's ſeed, or of leaves and twiſters of vine, and put either of them to infuſe in the caſk.

XVIII. *To reſtore a wine corrupted and glairy.*

Put in the wine cow's milk a little ſaltiſh; or elſe the rinds and ſhells of almonds tied up in a bag: or again pine kernels.

XIX. *To prevent wine from growing ſour, and turning into vinegar.*

Hang by the bung hole, in the caſk, a piece of bacon, of about one pound and a half, and replace the bung. Or elſe throw into the wine a little bagful of aſhes of virgin vine.

XX. To

XX. *To make a new wine taſte as an old wine.*

Take one ounce of melilot, and three of each of the following drugs, *viz.* liquoriſh, and celtick-nard, with two of hepatick aloes; grind, and mix all well altogether, put it in a bag, and hang it in the wine.

XXI. *To reſtore a wine turned.*

Draw a pail full of it; or, take the ſame quantity of another good ſort, which you boil, and throw quite boiling hot over that which is ſpoiled and ſtinking; then ſtop the caſk quickly with its bung. A fortnight after taſte it, and you will find it as good as ever it was, or can be.

XXII. *To reſtore a wine* fuſted, *or taſting of the caſk.*

Draw that wine intirely out of its own lye, and put it in another caſk over a good lye. Then, through the bung hole, hang up a bag with four ounces of laurel berries in powder, and a ſufficient quantity of ſteel filings, at the bottom of the bag, to prevent it's ſwimming on the top of the wine. And, in proportion as you draw a certain quantity of liquor, let down the bag.

XXIII. *To prevent wine from pricking.*

Put in the caſk half a pound of ſpirit of tartar. Or, elſe, when the wine is ſtill new and *mout,* throw in two ounces of common alum for every hogſhead.

XXIV. *To make wine keep.*

Extract the ſalt from the beſt vine branches; and of this put three ounces in every hogſhead at Martinmas when the caſks are bunged up.

XXV. *To clarify wine eaſily.*

Put in the caſk two quarts of boiling milk after having well ſkimmed it.

XXVI. *To prevent wine from turning.*

Put in the caſk one pound of hare's-ſhot.

XXVII. *To correct a muſty taſte in wine.*

Knead a dough of the beſt wheat-flour, and make it in the form of a rolling pin, or a ſhort thick ſtick. Half bake it in the oven, and ſtick it all over with cloves. Replace it in the oven to finiſh baking it quite. Suſpend it in the caſk over the wine without touching it,

and

and let it remain there: Or elſe let it plunge in the wine for a few days, and take it quite out afterwards. It will correct any bad flavour the wine might have acquired.

XXVIII. *Another method.*

Take very ripe medlars, and open them in four quarters, without parting them aſunder. Then tye them with a thread, and fix them to the bung, ſo that by putting it in again they may hang and ſoak in the wine. One month afterwards take them out, and they will carry off all the bad taſte of the wine.

XXIX. *To correct a ſour, or bitter taſte in wine.*

Boil a quartern of barley in four quarts of water to the reduction of two. Strain what remains through a cloth, and pour it in the caſk, ſtirring all together with a ſtick without touching the lye.

XXX. *To reſtore a ſpoiled wine.*

Change the wine from its own lye, upon that of good wine. Pulveriſe three or four nutmegs, and as many dry orange peels, aud throw them in. Stop well the bung, and let it ferment one fortnight. After that term is over you will find it better than ever. This method has gone through many experiments.

XXXI. *To ſweeten a tart wine.*

Put in a hogſhead of ſuch a wine, a quarter of a pint of good wine vinegar ſaturated with litherage; and it will ſoon loſe its tartneſs.

XXXII. *Another way.*

Boil a quantity of honey in order to get all the waxy part out of it, and ſtrain it through a double cloth. Of ſuch a honey thus prepared put two quarts to half a hogſhead of tart wine, and it will render it perfectly agreeable. If in the ſummer, and there be any danger of its turning, throw in a ſtone of quick lime.

XXXIII. *To prevent tartneſs in wine.*

Take, in the month of March, two baſonfuls of river ſand; and, after having dried it in the ſun, or in the oven, throw it in the caſk.

XXXIV. *To heighten a wine in liquor, and give it an agreeable flavour.*

Take two dozen or thereabouts of myrtle berries, very ripe. Bruiſe them coarſely, after having dried them perfectly, and put them in a bag, which ſuſpend in the middle of the caſk. Then ſtop this well with its bung. A fortnight afterwards take off the bag, and you will have a very agreeable wine.

XXXV. *To give wine a moſt agreeable flavour.*

Take a pailful of *mout*, which boil and evaporate to the conſiſtence of honey. Then mix with it one ounce of Florentine orrice, cut in ſmall bits, and one drachm of *coſtus*. Put all into a bag, and let it down in the caſk by the bung-hole, after having previouſly drawn out a ſufficient quantity of wine to prevent the bag from coming at it. This bag being thus ſuſpended by a ſtring which will hang out of the bung-hole, ſtop it well, and there will drop from the bag into the wine a liquor which will give it a moſt agreeable taſte.

XXXVI. *How to find out whether or not there be water mixed in a caſk of wine.*

Throw in the caſk one wild pear, or apple. If either of theſe two fruits ſwim, it is a proof there is no water in the wine: for, if there be any, it will ſink.

XXXVII. *To ſeperate the water from wine.*

Put into the caſk a wick of cotton, which ſhould ſoak in the wine by one end, and come out of the caſk at the bung-hole by the other: and every drop of water which may happen to be mixed with the wine, will ſtill out by that wick or filter.

You may again put ſome of this wine into a cup made of ivy-wood: and, then the water will perſpire through the pores of the cup, and the wine remain.

XXXVIII. *To ungreaſe wine in leſs than twenty-four hours.*

Take common ſalt, gum-arabic, and vine-bruſh aſhes, of each half an ounce. Tie all in a bag, and fix it to a hazel-tree ſtick; then by the bung-hole ſtir well the wine for one quarter of an hour, after which take it out, and ſtop the caſk: The next day the wine will be as ſound as ever.

XXXIX. *To*

XXXIX. *To reſtore a wine.*

Put in the caſk one pound of Paris plaiſter. Then make a piece of ſteel red-hot in the fire; and, by means of a wire fixed to one of its ends, introduce it by the bung-hole into the wine. Repeat this operation for five or ſix days running, as many times each day. Then, finally, throw into the wine a ſtick of brimſtone tied in a bag, which you take off two days after; and the wine will be perfectly well reſtored.

XL. *To correct a bad taſte and ſourneſs in wine.*

Put in a bag a root of wild horſe-radiſh cut in bits. Let it down in the wine, and leave it there two days: take this out, and put another, repeating the ſame till the wine is perfectly reſtored.

XLI. *Another way.*

Fill a bag with wheat, and let it down in the wine; it will have the ſame effect.

XLII. *Another way.*

Put a-drying in the oven, as ſoon as it is heated, one dozen of old walnuts; and, having taken them out along with the bread, thread them with a ſtring, and hang them in the wine, till it is reſtored to its good taſte; then take them out again.

XLIII. *To cure thoſe who are too much addicted to drink wine.*

Put, in a ſufficient quantity of wine, three or four large eels, which leave there till quite dead. Give that wine to drink to the perſon you want to reform, and he or ſhe will be ſo much diſguſted of wine, that tho' they formerly made much uſe of it, they will now have quite an averſion to it.

XLIV. *Another method, no leſs certain.*

Cut, in the ſpring, a branch of vine, in the time when the ſap aſcends moſt ſtrongly: and receive in a cup the liquor which runs from that branch. If you mix ſome of this liquor with wine, and give it to a man already drunk, he will never reliſh wine afterwards.

XLV. *To prevent one from getting intoxicated with drinking.*

Take white cabbage's, and ſour pomegranate's juices, two ounces of each, with one of vinegar. Boil all together for ſome time to the conſiſtence of a ſyrup. Take one ounce of this before you are going to drink, and drink afterwards as much, and as long, as you pleaſe.

XLVI. *Another way.*

Eat five or ſix bitter almonds faſting: this will have the ſame effect.

XLVII. *Another way.*

It is affirmed, that if you eat mutton or goat's lungs roaſted; cabbage, or any ſeed; or worm-wood, it will abſolutely prevent the bad effects which reſult from the exceſs of drinking.

XLVIII. *Another way.*

You may undoubtedly prevent the accidents reſulting from hard drinking, if before dinner you eat, in ſallad, four or five tops of raw cabbages.

XLIX. *Another method.*

Take ſome ſwallows' beaks, and burn them in a crucible. When perfectly calcined grind them on a ſtone, and put ſome of that powder in a glaſs of wine, and drink it. Whatever wine you may drink to exceſs afterwards, it will have no effect upon you.

The whole body of the ſwallow, prepared in the ſame manner, will have the ſame effect.

L. *Another way.*

Pound in a mortar the leaves of a peach-tree, and ſqueeze the juice of them in a baſon. Then, faſting, drink a full glaſs of that liquor, and take whatever exceſs of wine you will on that day, you will not be intoxicated.

LI. *A method of making people drunk, without endangering their health.*

Infuſe ſome aloe-wood, which comes from India, in a glaſs of wine, and give it to drink. The perſon who drinks it will ſoon give ſigns of his intoxication.

LII. *Another way.*

Boil in water ſome mandrake's bark, to a perfect redneſs of the water in which it is a-boiling. Of that liquor, if you put in the wine, whoever drinks it will ſoon be drunk.

LIII. *To recover a perſon from intoxication.*

Make ſuch a perſon drink a glaſs of vinegar, or ſome cabbage-juice, otherwiſe give him ſome honey. You may likewiſe meet with ſucceſs by giving the patient a glaſs of wine quite warm to drink, or a diſh of ſtrong coffee, without milk or ſugar, adding to it a large tea-ſpoonful of ſalt.

LIV. *To prevent the breath from ſmelling of wine.*

Chew a root of *iris troglotida*, and no one can diſcover, by your breath, whether you have been drinking wine or not.

LV. *To preſerve wine good to the laſt.*

Take a pint of the beſt ſpirit of wine, and put in it the bulk of your two fiſts of the ſecond peel of the elder-tree, which is green. After it has infuſed three days, or thereabouts, ſtrain the liquor through a cloth, and pour it into a hogſhead of wine. That wine will keep good for ten years, if you want it.

CHAP. X.

Concerning the compoſition of VINEGARS.

I. *To make good wine vinegar in a ſhort time.*

THROW ſome *Taxus* wood, or yew-tree, in any wine, and it will not be long before it turns into vinegar.

II. *To change wine into ſtrong vinegar.*

Take tartar, ginger, and long pepper, of each equal doſes. Infuſe all for one week in good ſtrong vinegar, then take it out, and let it dry. And whenever you want to make vinegar, put a bag full of theſe drugs in wine; it will ſoon turn into vinegar.

III. *To make very good and ſtrong vinegar with the worſt of wines.*

Grind into ſubtile powder five pounds of crude tartar. Pour on it one pound of oil of vitriol. Wrap up the whole in a bag, tye it, and hang it by the bung-hole, in a caſk of bad and totally ſpoiled wine. Move and ſtir now and then that bag in the wine, and it will turn into very good vinegar.

IV. *To turn wine into vinegar in leſs than three hours.*

Put in the wine a red beet, and it will be quite ſour, and turn vinegar, in leſs than three hours.

V. *To reſtore ſuch a wine to its firſt taſte.*

Take off the red beet, and in its ſtead put a cabbage root into that wine, and it will return to its primary taſte, in the ſame ſpace of time.

VI. *An excellent preparation of vinegar.*

1. Take white cinnamon, long pepper, and *cyperus*, of each one ounce: round pepper half an ounce, and two nutmegs. Pulveriſe each drug ſeparately, and put them in ſo many diſtinct bags. Put them in ſix different and ſeparate quarts of the beſt vinegar, and boil them two or three minutes.

2. Then boil ſeparately ſix quarts of good wine.

3. Seaſon a caſk, which is done by pouring a quart of the beſt vinegar into it, with which you rinſe it. Then pour in your boiled wine and vinegars, and fill half-way the caſk, with the worſt and moſt ſpoiled wine. Stop the caſk, and keep it till the vinegar is done. You may then draw from it, and refill the caſk with the ſame quantity of bad wine, as you take off of vinegar.

VII. *To render vinegar alkali.*

Saturate any quantity of vinegar with ſalt of tartar.

VIII. *To make, in one hour, good roſe vinegar.*

Put a drachm of hare's marrow in a point of wine, and you will ſee the conſequence.

IX. *Another method to make ſuch vinegar in an inſtant.*

1. Take common roſes, and unripe black berries which grow in hedges, of each four ounces, and of barberry fruits one. Dry them all in the ſhade, and reduce them into ſubtile powder.

2. Mix two drachms only of this powder into a glaſs of white or red wine, then let it ſettle to the bottom, and ſtrain through a cloth. It will be a very fine vinegar.

X. *To*

X. *To operate the ſame in one hour's time, on a larger quantity of wine.*

1. Take the beſt rye-flour, which dilute in the ſtrongeſt vinegar, and make a thin round cake with it. Bake it quite dry in the oven; then pound it into a fine powder, with which and vinegar you make again another cake as before, and bake it alſo like the firſt. Reiterate this operation three or four times.

2. If you hang the laſt made cake in a caſk of wine quite hot, you will turn the whole into vinegar in leſs than one hour.

XI. *The receipt of the vinegar called the* Grand Conſtable's Vinegar.

Take one pound of damaſk raiſins, and cure them of their ſtones. Put theſe raiſins in a glazed jar, with two quarts of good roſe vinegar. Let all infuſe for one night over hot aſhes; then boil it the next morning four or five minutes only. Take it off the fire and let it cool. Strain it through a cloth, and bottle it to keep for uſe, afterwards cork the bottle.

XII. *A ſecret to increaſe the ſtrength and ſharpneſs of the vinegar.*

Boil two quarts of good vinegar to the evaporation of one; then put it in a veſſel, and ſet it in the ſun for a week. Now if you mix this vinegar among ſix times as large a quantity of bad vinegar in a ſmall caſk, it will not only mend it, but make it both very ſtrong and very agreeable.

XIII. *Another way to do the ſame.*

The root of *rubus idæus*; the leaves of wild pear-tree; acorns roaſted in the fire; the liquor in which vetches (peas) have been boiled; horſe cheſnut's powder put in a bag, *&c. &c.* add greatly to the ſharpneſs of vinegar.

XIV. *The ſecret for making good vinegar, given by a vinegar-man at* Paris.

1. Pound coarſely, or rather bruiſe only, one ounce of long pepper, as much ginger, and the ſame quantity of *pyrethra*. Put theſe in a pan over the fire with ſix quarts of wine. Heat this only to whiteneſs, then put it in a ſmall caſk, and ſet it in the ſun, or over a baker's oven, or any other warm place.

2. Now and then add new wine in your caſk after having previouſly heated it as before, and let that quantity be no more than two or three quarts at a time, till the caſk is quite full.—If you add a few quarts of real vinegar, it will be the ſtronger.—Before caſking the wine, you muſt let it reſt in the pan in which it has boiled for two or three days.—A glazed earthen pan is therefore preferable to a copper one for boiling the wine in; for during the three days infuſion, the copper might communicate a dangerous quality of verdigriſe to the vinegar.—When you put ſome vinegar, as before mentioned, to meliorate this compoſition, inſtead of wine, you muſt take care to heat it likewiſe over the fire, but not ſo much as the wine.—Let the caſk be well rinſed and perfectly clean, before putting the vinegar in.

3 The wild black-berries which grow among hedges are alſo very good to make vinegar, but they muſt be uſed while red, before they are ripe; then put them in the wine, and heat this to whiteneſs, and proceed in the ſame manner as you do with *pyrethra*, ginger, and long pepper.—The doſe of black-berries is not determined; you may take any diſcretionable quantity of them, and the vinegar which reſults from theſe is very good.

XV. *To make vinegar with water.*

Put thirty or forty pounds of wild pears in a large tub, where you leave them three days to ferment. Then pour ſome water over them, and repeat this every day for a month: At the end of which it will make very good vinegar.

XVI. *To make good vinegar with ſpoiled wine.*

Put a large kettle-full of ſpoiled wine on the fire; boil and ſkim it. When waſted of a third, put it in a caſk wherein there is already ſome very good vinegar. Add a few handfuls of chervil over it in the caſk, and ſtop the veſſel perfectly cloſe. You will have very good vinegar in a very ſhort time.

XVII. *A dry portable vinegar, or the* vinaigre en poudre.

Waſh well half a pound of white tartar with warm water, then dry it, and pulveriſe it as fine as poſſible. Soak that powder with good ſharp vinegar, and dry it before the fire, or in the ſun. Reſoak it again as before with vinegar, and dry it as above, repeating this operation a dozen of times. By theſe means you ſhall have a very good and ſharp powder, which turns water itſelf inſtantly into vinegar. It is very convenient to carry in the pocket, eſpecially when travelling.

CHAP. XI.

SECRETS relative to LIQUORS and ESSENTIAL OILS.

I. *To make as good wine as* Spaniſh *wine.*

1. TAKE one hundred pounds weight of dry raiſins, from which pick off the ſtems, and open the fruit with a knife. Put theſe in a large wooden tub, very clean. Boil fifteen gallons of rain-water, purified by ſtraining through the filtering paper. Pour it over the raiſins, and cover it, to preſerve the heat of the water. Twenty-four hours after take off the raiſins, which will be ſwelled, and pound them in a large marble mortar, then put them again in the tub. Heat fifteen gallons more of water, which pour over the other with the raiſins, and throw in twenty-five pounds of coarſe ſugar. Stir all well, and cover the tub over with two blankets. Three days after, by a cock placed at the bottom of the tub, draw out all the liquor, and caſk it, adding ſix quarts of brandy to it. Preſs the ground with an apothecary's preſs, and put the juice in the caſk with two pounds of white tartar pounded into a ſubtile powder, in order to promote the fermentation, and five or ſix ounces of polychreſt ſalt, and a knot of garden creſs-ſeed, of about ſixteen or eighteen ounces weight, and another knot of ſeven pugils of elder flowers. Theſe knots are to be ſuſpended by a thread in the caſk.

2. If the wine look too yellow, you muſt ſtrain it through a jelly-bag, in which you ſhall put one pound of ſweet almonds pounded with milk. The older the wine, ſo much the better it is.

3. To make it red, diſſolve ſome cochineal pounded in a certain quantity of brandy, along with a little alum powder, in order to draw the better the dye of the cochineal, which put to digeſt on a ſand bath. Till the brandy has aſſumed a proper degree of colour, give it to your wine in a ſufficient degree.

4. It is preferable to clarify the ſugar well, and to put it in the caſk inſtead of the tub.

II. *Another way to imitate* Spaniſh *wine.*

Take ſix quarts of white wine; Narbonne honey, one pound; Spaniſh raiſins as much; coriander bruiſed, one drachm; coarſe ſugar, one pound. Put all in a kettle on a ſlow fire, and leave it there, well covered, for three hours. Strain this through a jelly-bag, then bottle and ſtop it well. Eight or ten days after it is fit for drinking.

III. *To make the* Roſſolis.

1. Boil firſt ſome water, and let it cool till it is no more than lukewarm. Take next all the ſorts of fragrant flowers the ſeaſon can afford, and well picked, keeping none but the petals of each flower. Infuſe theſe, each ſeparately, in ſome of that lukewarm water, to extract their odorous ſmell, or fragrancy. Then take them off, and drain them.—Pour all theſe different waters in one pitcher; and to every three quarts of this mixture put a quart or three pints of ſpirit of wine, three pounds of clarified ſugar, one quarter of a pint of eſſential oil of aniſe-ſeed, and an equal quantity of eſſential oil of cinnamon.

2. Should your *Roſſolis* prove too ſweet and ſlimy in the mouth, add half a pint, or more, of ſpirit of wine.

3. If you think the eſſential oil of aniſe-ſeed ſhould whiten too much the *Roſſolis*, mix it with the ſpirit of wine, before putting it in the mixed waters.

4. If you want to increaſe the fragrancy, add a few ſpoonfuls of eſſential oils of different flowers, with one pugil or two of muſk, prepared amber, and lump ſugar pulveriſed. Then ſtrain the *Roſſolis* through a jelly-bag to clarify it, bottle and ſtop it well. Thus it may keep for ten years, and upwards.

IV. *To make a* Roſſolis *which may ſerve as a foundation to other liquors.*

Put three quarts of brandy, and one of water, in a glazed earthen pot. Place this pot on a charcoal fire, adding a cruſt of bread and one ounce of aniſe-ſeed, and cover it till it boils. Then uncover it, and let it boil five minutes, and put in one pound of ſugar, or more if you chuſe. Now beat the white of an egg with a little of your liquor, take the pot off from the fire, and throw in the white of an egg. Let this reſt thus for three days.

V. *To make* Amborſy.

In the above preſcribed *Roſſolis* water add three or four grains of paradiſe; as much cochineal pulveriſed; one clove; a little cinnamon and mace; ſix grains of coriander, and the quarter part of a lemon.

VI. *For the nectar.*

Add to the above *Roſſolis* one quarter of an orange pounded; ſome orange flowers, and the upper pellicula of an orange pounded in a mortar with lump ſugar in powder, and diluted with the fundamental *Roſſolis* water above deſcribed.

VII. *A common* Roſſolis.

Inſtead of one pound of ſugar, put only half-a-pound, and as much of honey.—To muſk it, put about fifteen grains of muſk, and as much of ambergriſe in powder, and pounded with ſugar, and mix it in the liquor.

VIII. *Another* Roſſolis.

1. Take one pound and a half of the fineſt white bread, quite hot at coming out of the oven, and put it in a retort, with half an ounce of cloves bruiſed; green aniſe-ſeed and coriander, one ounce of each; a quart of good red wine, as much cow-milk; then lute well the receiver, and all the joints, with ſtarched paper. Let it dry for twenty-four hours, then diſtil the liquor by the heat of a *balneum mariæ*, and keep it.

2. Make next a ſyrup, with brandy or ſpirit of wine, which burn over lump ſugar pulveriſed in an earthen diſh or pan, ſtirring always with a ſpoon, till the flame has ſubſided. Then mix one drachm of ambergriſe with an equal quantity of ſugar; and, having pulver-

iſed the whole, put it in a ſmall matraſs; pour over it one ounce of ſpirit of wine, and put all to digeſt for twenty-four hours on a *balneum mariæ*. There will then reſult a diſſolution which will congeal again in the cold.

3. To form your *Roſſolis*, mix with your firſt compoſition, the above-mentioned ſyrup of brandy, and the eſſence of amber.—If you want the *Roſſolis* to be ſtronger, add ſome more ſpirit of wine to it, till it is as you deſire to have it.

IX. *Another way.*

Boil your ſyrup to conſiſtence after the common method. When done, add as much ſpirit of wine as you think proper, as well as of the above-mentioned eſſence of amber, or any other ſort you pleaſe to prefer; and you will have as good *Roſſolis* as that which comes from Turin.

X. *To make* Eau de Franchipane.

Put half a pound of ſugar in one quart of water; add a quarter of a pound of jeſſamine flowers, which infuſe for ſome time. When you find the liquor has acquired a ſufficient degree of fragrancy, ſtrain it through a jelly-bag, and add a few drops of eſſential oil of ambergriſe.

XI. *Orange-flower water made inſtantly.*

Put one handful of orange flowers in a quart of water, with a quarter of a pound of ſugar. Then beat the liquor by pouring it from one veſſel into another, till the water has acquired what degree of fragrancy you want it to have.

XII. *Muſcadine roſe-water.*

Put two handfuls of muſcadine roſes in one quart of water, with one quarter of a pound of ſugar. For the reſt proceed as above.

XIII. *To make raſpberry, ſtrawberry, cherry, or other ſuch waters.*

1. Take the ripeſt raſpberries, ſtrain them through a linen cloth to expreſs all the juice out of them. Put this in a glaſs bottle uncorked, and ſet it in the ſun, in a ſtove, or before the fire, till cleared down. Then

decant it gently into another bottle, without diſturbing the *fæces* which are at the bottom.

2. To half a pint of this juice, put a quart of common water, and a quarter of a pound of ſugar. Beat all together, by pouring backwards and forwards from one veſſel into another, ſtrain it through a linen cloth, and ſet it to cool in a pail of ice. It is a fine cooling draught in the ſummer.

3. Strawberries, cherries, *&c.* are done in the ſame manner.

XIV. *Lemonade water at a cheap rate.*

Diſſolve half a pound of ſugar in a quart of water; raſp over it the yellow part of one, two, or three lemons, as you like, and mix a few drops of eſſential oil of ſulphur in the liquor. Then cut three or four ſlices of lemon in the bowl, when you put the liquor in it.

XV. *Apricot water.*

Take a dozen of apricots very ripe. Peel and ſtone them. Boil a quart of water, then take it off from the fire and throw in your apricots. Half an hour after put in a quarter of a pound of lump ſugar, which being diſſolved, ſtrain all through a cloth, and put it to cool in ice as the others.

XVI. *To make exceeding good lemonade.*

On a quart of water put the juice of three lemons, or two only if they be very juicy. Add ſeven or eight zeſts of them beſides with one quarter of a pound of ſugar. When the ſugar is deſolved, ſtrain the liquor, and cool it in ice as before mentioned.

XVII. *To make orangeade the ſame way.*

You proceed with your oranges as with the lemons. If theſe be good, but little juicy, you muſt ſqueeze three or four oranges, with the addition of eight or ten zeſts. If you love odour, you may add ſome muſk and prepared amber.

XVIII. *To make* Eau de Verjus *.

Put on a quart of water three quarters of a pound of *Verjus* in grapes picked out from the ſtalks. Squeeze it firſt in a marble or wooden mortar, without pounding it for fear the ſtones ſhould give it a bitter taſte. After having put fruit, juice, and all in the water, handle it in the water, then ſtrain it to purge it from the coarſeſt grounds; add about five ounces of ſugar to the ſtrained liquor, or more if wanted, according to the ſourneſs of the fruit. As ſoon as the ſugar is diſſolved, paſs and repaſs it through the jelly-bag to clarify it: then cool it in ice, as uſual, for drinking.

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* A ſort of ſour grape uſed in France as a fine acid in ſauces.

XIX. *To make orgeat-water.*

Take one ounce of melon ſeed, with three ſweet and three bitter almonds. Pound all together in a marble mortar, adding a few drops of water to it while you pound, to prevent its turning into oil. Make all into a paſte with the peſtle in the mortar, then add a quarter of a pound of fine white lump ſugar in powder, which mix with the paſte. Dilute this in a quart of water, and after having mixed it well, ſtrain it through a flannel. Squeeze well the grounds in it till quite dry, and in the liquor add ſeven or eight drops of eſſential oil of orange; and, if you like it, a quarter of a pint of milk pure as from the cow. Put this to cool in ice, and ſhake the phial when you ſerve it in a glaſs to drink.

XX. *Other waters.*

The pigeon, the piſtachio, and the Spaniſh nut waters, are made in the very ſame manner; the milk and almonds of either ſorts, being only excepted.

XXI. *To make a cooling cinnamon water.*

Boil one quart of water in a glaſs veſſel before the fire. Then take it off and put in two or three cloves, and about half an ounce of whole cinnamon. Stop well the bottle; and, when the water is cold, put half a pint only of it in two quarts of water with ſugar to your palate, a quarter of a pound is generally the proper quantity. When done, cool it, as uſual, in ice before ſerving.

XXII. *To make coriander water.*

Take a handful of coriander, which ſhell, and put in a quart of water half cooled again, after having boiled. Add one quarter of a pound of ſugar, and, when the water has acquired a ſufficient degree of taſte, ſtrain, cool, and ſerve it as uſual.

XXIII. *Aniſe-ſeed water.*

The aniſe-ſeed water is made in the very ſame manner as the coriander water.

XXIV. *Citron water.*

Take a citron, which ſtrip of its peel, and cut in ſlices croſs-way. Put theſe ſlices in a quart of water, with a quarter of a pound of ſugur. Beat well this water by pouring it backwards aud forwards from one veſſel into another, and when it has a ſufficient taſte of the citron, ſtrain it, *&c.*

XXV. *Cinnamon water.*

Bruiſe one pound of the fineſt cinnamon, and put it to infuſe for twenty-four-hours in four pounds of diſtilled roſe-water, with half a pound or a pint of white wine, which put all together during that time in a glaſs matraſs on warm aſhes, and ſtop well the veſſel, ſo that it ſhould breath no air. At the end of twenty-four hours increaſe the fire ſo as to procure a diſtillation, by putting the matraſs in the *balneum mariæ*, and keep this liquor in bottles well ſtopped.

XXVI. *To make cedrat water.*

Have a dozen of fine lemons, which ſplit into two parts. Take out all the kernels, and keep nothing but the pulp wherein the juice is contained. Put them in a new glazed earthen pan. Boil one pound of ſugar to the *plume* degree, then pour it in the pot over the lemons. Set this on a good charcoal fire, and boil it again till the ſugar comes to the *pearl* degree, and then bottle it.

XXVII. *To make cedrat another way.*

1. Squeeze the juice out of thirteen lemons, which ſtrain through a cloth, and put them aſide.—Then put two quarts and a half of water in a pan. In a piece of linen put three other lemons parted into quarters, which tie and ſuſpend in the water, then boil them till the water has entirely extracted the taſte of the lemons, and take them out.

2. In this water, thus prepared, put four pounds of ſugar, and make a ſyrup, which clarify according to art,

with the white of an egg. When done, put in this ſyrup the juice of your thirteen lemons, and boil all together again to the conſiſtence of a ſyrup to the *pearl* degree, then bottle it.

3. When you want to uſe it, put four or five ounces of ſugar in a quart of water and ſtrain it through a jelly bag, then put in a table ſpoonful or more of your ſyrup, beat, cool, and drink it.

XXVIII. *Juniper-water.*

Put two pounds of juniper-berries with two quarts of brandy in a ſtone bottle, which ſtop well, and place on hot aſhes to infuſe for twenty-four hours. Strain the liquor, and add one pound of ſugar, half an ounce of cinnamon, as much cloves, a preſerved half-peel of a whole lemon, and two pugils of aniſe-ſeed. Theſe being put in the bottle, ſtop it well, and place it at two or three different times in a baker's oven, after the bread is out, and when you may bear your hand flat in it without burning.

XXIX. *To make good hydromel; otherwiſe, metheglin.*

Take honey and water equal quantities in weight. Boil them together and ſkim the honey. When done ſufficiently you may know by putting an egg in, which muſt ſwim on the top. Pour then the liquor in a caſk wherein there has been ſpirit of wine or good brandy well ſoaked with either, and ſtill wet with the ſpirit, and add two or three grains of ambergriſe. Stop well the caſk, and ſet it in the ſun during the dog-days. When it begins to ferment, unſtop the caſk to let the ſcum out, which ariſes like that of new wine. Obſerve, during all that time not to ſtir the caſk. When the firſt fire of the fermentation has ſubſided, ſtop the caſk again, and the hydromel is fit for keeping.

Note. Inſtead of the ſun, you may, in other ſeaſons, make uſe of the top of a baker's oven, a ſtove, or a hot houſe.

XXX. *To make* Eau d'Ange.

1. Take half a pound of the beſt cinnamon, and fifteen cloves, which pound into powder and put into a quart of water, with a nut-ſhell full of aniſe-ſeed and infuſe for twenty-four hours, then boil on a charcoal fire, and ſtrain.

2. If you want to make it ſtronger, you may, after it is cold, put what quantity you like of brandy, with a proportionable quantity of ſugar.

XXXI. *Another* Eau d'Ange.

Put a quart of roſe-water in a glaſs bottle with three ounces of benjamin, and half an ounce of ſtorax in powder, which incorporate all together for four or five hours on a ſlow fire. Decant the liquor by inclination, and add to this *colatura* ſix grains of muſk, and as many of grey amber.

XXXII. *Another* Eau d'Ange.

1. Take three pounds of Roſe water, three of orange, and two of melilot-flowers; four ounces of benjamin, and two of ſtorax; aloes, and *ſantalum-citrinum*, one drachm of each; cinnamon and cloves, of each one; the bulk of a bean of *calamus aromatica*, with four grains of muſk. Bruiſe coarſely what may be ſuſceptible of the mortar, and then put all the drugs together in a varniſhed earthen pan, which ſet on a gentle fire to boil moderately to the evaporation of one third. Then ſtrain it clear.

2. With the grounds you may make lozenges, with a little gum adragant to compact them.—This ground is uſed alſo in making muſk vinegar.

XXXIII. *A light and delicate* Roſſolis, *known under the denomination of* Populo.

1. Boil three quarts of water, then let them cool again. Add one quart of ſpirit of wine, one of clarified ſugar, half a glaſs of eſſential oil of cinnamon, and a very little of muſk and ambergriſe.

2. Obſerve the ſugar ſhould not be boiled too much in clarifying, for fear it ſhould cryſtalize when in the *Roſſolis*, and cauſe clouds in it. Obſerve alſo to boil the water firſt, as preſcribed before uſing it, to prevent the corrupting of the liquor; which would infallibly be the caſe were you to imploy it unboiled.

XXXIV. *Angelic water*.

1. Take half an ounce of Angelica, as much cinnamon, a quarter part of cloves, the ſame quantity of mace, of coriander, and of green aniſe-ſeed, with half

an ounce of cedar wood. Bruiſe all theſe ingredients in a mortar, and ſet them to infuſe for twelve hours, with two quarts of genuine brandy, in a matraſs or retort. Then diſtill the liquor by the *balneum mariæ*.

2. Two or three ounces only of this eſſential ſpirit in two quarts of brandy, with the addition of a very ſmall quantity of muſk and ambergriſe, will make a very agreeable liquor.

XXXV. *The preparation of muſk and amber, to have it ready when wanted to put in cordials.*

Put in a mortar and pulveriſe four grains of amber, two of muſk, and two ounces of ſugar. Wrap this powder up in a paper, and cover it over with ſeveral others.—With this powder you may perfume ſuch cordials as require it.—The doſe is a pugil, which taken with the point of a knife, you ſhake lightly in it. You may however increaſe or diminiſh this doſe, according to your liking.

XXXVI. *To make* Eau-de-Cete.

To three quarts of boiled water, cooled again, put a gill of eſſential ſpirit of aniſe-ſeed mixed into three pints of ſpirit of wine. Add one pint, or thereabouts, of clarified ſugar.—If you want your liquor to be ſtronger, you need only to increaſe, at will, the quantity of the ſpirit of wine.

XXXVII. *To make the compounded* Eau-clairette.

Take ſix pounds of the beſt and fineſt Kentiſh cherries very ripe, ſound and without ſpots; two of raſpberry; and the ſame quantity of red currants, alſo very ripe and ſound, and without ſtalks. Maſh the whole in a ſieve over a pan. To every one quart of that juice put one of brandy, with three quarters of a pound of ſugar, ſeven or eight cloves, as many grains of white pepper, a few leaves of mace, and a pugil of coriander, the whole coarſly bruiſe in a mortar.—Infuſe all theſe together, well ſtopped, for two or three days, ſhaking it now and then, to accelerate the diſſolution of the ſugar. Then ſtrain the liquor, firſt through the jelly-bag, next filter it through the paper, and bottle it to keep for uſe.

XXXVIII. *The cinnamon water.*

In three quarts of once boiled, and then cooled again, water, put half a pint of eſſential ſpirit of cinnamon, diſtilled like that of aniſe-ſeed. Add three pints of ſpirit of wine, and one of clarified ſugar. Strain all through the jelly-bag, *&c. &c.*

XXXIX. *To make a ſtrong aniſe-ſeed water, or animated brandy.*

Put half a pint of eſſential ſpirit of aniſe-ſeed, into three quarts of the beſt genuine brandy, with one of boiled water.—If you want it ſweet, add one pint of clarified ſugar. Strain all through the jelly-bag, *etc etc.*

XL. *To make white* ratafia, *called otherwiſe* Eau-de-Noiau, *or kernel water.*

Pound three quarters of a pound of cherry, or half a pound of apricot, ſtones, or both together if you will; which put altogether, wood and kernals, or almonds, in a ſtone pitcher, with twelve quarts of brandy. Add one drachm of cinnamon, a dozen of cloves, two pugils of coriander, and three pounds and a half of ſugar. Let all theſe infuſe together a reaſonable time. When ſufficiently taſty, and ready to ſtrain, add four quarts of water that has been boiled and is cool again. Then run it through the jelly-bag, and next through the filtering paper; bottle and ſtop it to keep for uſe.

XLI. *To make good* Hypocras, *both the red and white ſort.*

1. Take two quarts, more or leſs, as you like, of the beſt wine, whether red or white. Put in one pound of the beſt double refined lump ſugar, two juicy lemons, ſeven or eight zeſts of Seville orange, with the juice ſqueezed out of another of the ſame ſort. Add half a drachm of cinnamon bruiſed in a mortar, four cloves broken into two parts, one or two leaves of mace, five or ſix grains of white pepper bruiſed, half of a *capſicum's* pod, and one ounce of coriander bruiſed, half a pint of genuine cow milk, half a golden pippin, or a whole one, peeled and cut in ſlices.

2. Stir well theſe ingredients together in your wine, and let it reſt a reaſonable time, no leſs at leaſt than

twenty-four hours. Then obtain the liquor through the flannel bag, repeating the ſame till it comes clear.

3. If you want to perfume that *Hypocras*, you muſt put in the bag when you run it, a little pugil of muſk and amber powder prepared, as mentioned in this chapter, Art. xxxv. This *Hypocras* may keep for a twelvemonth without ſpoiling.

XLII. *To make good* Roſſolis.

Diſſolve one pound and a quarter of ſugar, in half a pint of ſpirit of wine. Boil it one bubble or two only, to give an opportunity of ſkimming it. When done, put it in a large glaſs bottle, with three pints of good white wine, and a gill of orange-flower water. Muſk and amber it as uſual, and at your liking.

XLIII. *An eſſence of* Hypocras, *to make this liquor inſtantly, and at will.*

1. Put in a pint bottle one ounce of cinnamon; a little more than half an ounce of cloves; and, on the point of a knife, a little muſk and amber, prepared as in Art. xxxv. Fill it half-way with ſpirit of wine, or the beſt brandy; then ſtop it ſo that nothing can evaporate. Set all to infuſe for ſeven or eight days on warm aſhes. And, when it ſhall have waſted two thirds, or thereabouts, preſerve carefully what ſhall remain.

2. When you want to make *Hypocras* inſtantly, melt half-a-pound of lump ſugar in a quart of good wine; and, when perfectly diſſolved, let fall one drop or two of the above prepared eſſence, in a clean glaſs decanter, in which pour directly the wine with the ſugar diſſolved in it, then run it through the flannel bag. Bottle it again, or drink it; the *Hypocras* will be found good.

XLIV. *An exceeding good* Ratafia.

On a quart of good brandy, put half a pint of cherry juice, as much of currants, and the ſame of raſpberries. Add a few cloves, a pugil of white pepper in grain, two of green coriander, and a ſtick or two of cinnamon. Then pound the ſtones of the cherries, and put them in, wood and all together. Add a few kernels of apricots, thirty or forty are ſufficient. Stop well the pitcher, which muſt be a new one, after all theſe ingredients are in, and let the whole infuſe a couple of months in the ſhade, ſhaking twice or thrice during that ſpace of time, at the end of which you run the liquor through the flannel bag, and next through the filtering paper, then bottle and ſtop it well for uſe.

Note. In increaſing in due proportion the quantity of the brandy, and the doſes of each of the ingredients preſcribed, you may make what quantity you like of this *Ratafia.*

XLV. *An eſſence of ambergriſe.*

Pound one drachm of ambergriſe, and put it on a pint of good ſpirit of wine, in a thick and green glaſs bottle. Add to it half a drachm of muſk in bladder, cut very ſmall. Set this bottle in the full South ſun, on gravel, during the dog-days, taking it off every night, and during rainy weather. Stir and ſhake well the bottle, and its contents, two or three times a-day, when the ſun ſtrikes on the bottle, that the amber may diffuſe in the liquor. One month after, take off the bottle from its expoſition, and the eſſence is made.—Decant, bottle, and ſtop it for uſe.

XLVI. *Another, and ſhorter way of making the ſame.*

Put two grains of ambergriſe, and three of muſk, in a matraſs with one gill and a half of good brandy. Stop the matraſs well, and put it in digeſtion in a *balneo mariæ*, for two or three days. Strain it through a piece of flannel, and bottle it to keep for uſe.

XLVII. *A ſmelling water.*

1. Put in any quantity of brandy, benjamin, and ſtorax calamite, equal parts; a little cloves and mace, coarſely bruiſed. Set this a-digeſting for five or ſix days on warm aſhes. When the liquor is tinged of a fine red, decant it gently from the reſidue in a glaſs bottle, and throw in a few grains of muſk, before ſtopping it.

2. Three drops of this ſmelling water in a common glaſs tumbler of water, give it a very agreeable fragrance.

3. With the ground, or reſidue, you may make lozenges, in adding a little gum-adragant to bind them.

XLVIII. *A receipt to compoſe* one pint *of* Roſſolis, *with which you can make forty.*

1. Take two ounces of galanga; half a one of cinnamon; as much cloves; one of coriander; a pennyworth of green aniſe-ſeed; half an ounce of ginger; two drachms of mace, and two of Florentine orrice. Bruiſe all, and put it to infuſe with three pints of the beſt brandy, in a matraſs with a long neck. Adapt it to the receiver, and lute well all the joints, both of the receiver, and the bolt-head, with paper and ſtarch.

2. Twelve hours after it has been a-digeſting, diſtil the liquor by the heat of a very gentle *balneum mariæ*, till you have got about one quart of diſtilled ſpirit.—Then unlute the receiver and keep the liquor.

3. You may adapt another receiver, or the ſame again, after being emptied, lute it, and continue to diſtil as before. But what will come will be infinitely weaker, though perhaps not altogether very indifferent.

XLIX. *To make a* Roſſolis *after that of* Turin.

Take ſix quarts of water, which boil alone, one minute or two: then put in four pounds of fine lump ſugar, which ſkim and clarify with the white of an egg beaten up with a little cold water. Boil afterwards that ſyrup to the waſting of a third, then ſtrain through the flannel bag; and, when cold, put in one gill only of the above *Roſſolis*, preſcribed in Art. xlix. *and of the firſt diſtillation.* Add to it beſides a pint of ſpirit of wine, or, for want of it, of the beſt genuine French brandy, in which you ſhall have put a cruſt of bread burnt, to take off a certain bitter taſte. After all this, perfume the liquor with a few drops of eſſence of muſk and amber.

Note. A pint of the *ſecond diſtillation* is no more than half a pint of the *firſt.*

L. *How to make* Sharbat, *a Perſian ſpecies of punch.*

There are various ways of making Sharbat.—Some make punch here with rum only, others with brandy; others again with arrack, and others with ſhrub. Some will have it mixed with two of theſe ſpirits, and others will make it with white wine. There are ſome who put acids, others do not; and, among the acids, ſome chuſe tartar only, others lemons, and others *Seville* oranges; ſome again ſqueeze a little of each of theſe two laſt tart fruits together in the ſame bowl of punch.

It is the ſame with reſpect to ſharbat, the famous *Perſian* drink. They make it with the various ſyrups extracted from all the odoriferous flowers: and the doſe is, one part of ſuch a ſyrup to ten parts of any ſpirituous liquor.—Or again, they make a weak *Roſſolis*, with the zeſts of oranges and lemons boiled together in water with ſugar.—Some, in ſhort, will make it with the eſſential ſpirit of muſk and amber only, put in boiling water with ſugar, juſt as we do our punch.

LI. *An exceeding fine eſſence of* Hypocras.

1. Take ſix ounces of cinnamon; two of *ſantalum-citrinum*; one of galanga; one of cloves; two drachms of white pepper; one ounce of grains of paradiſe. Or, if you would not have it ſo ſtrong, put with the cinnamon and *ſantalum* one ounce only of white *dictamum*, and four whole grains of long-pepper. Pound well all together, and ſet it to infuſe for five or ſix days in a matraſs, along with half a pint of ſpirit of wine, on warm aſhes. Decant it next gently without diſturbing the grounds, which put in linen and ſqueeze it, to get out all the liquor, which put again in the matraſs, with twenty grains of ambergriſe, and ſix of muſk. Stop well the veſſel, and ſet it in a cool place for five or ſix days more; then mix both liquors together, and filter them.

2. When you want to make *Hypocras*, diſſolve half a-pound of fine lump ſugar, in a quart of white *Liſbon*, or red claret, and let fall fifteen or ſixteen drops of the above eſſence in it, then ſhake all well together, and you will have a moſt admirable liquor. To render it ſtill more agreeable, you may ſtrain it through a flannel bag, at the bottom of which you ſhall have put ſome pounded almonds.

LII. *To make* Vin-des-Dieux.

Peel two large lemons, and cut them in ſlices; do the ſame with two large golden pippins. Put all a-ſoaking in a pan with a pint of good *Burgundy*, three quarters of a pound of lump ſugar in powder, ſix cloves, and half a gill of orange-flower water. Cover the pan, and keep it thus for two or three hours, then ſtrain the liquor through the flannel bag. You may muſk and amber it, like the *Hypocras*, if you will.

LIII. *Burnt wine.*

Put a quart of good *Burgundy* in an open pan, with one pound of ſugar, two leaves of mace, a little long-pepper, a dozen of cloves, two or three tops of roſemary branches, and two bay-leaves. Place that in the middle of a wheel-fire of blaſting charcoal. When the wine begins to be hot, ſet the fire to it with a bit of paper, and thus let it kindle and blaze till it goes out of itſelf. This wine is drank quite hot, and it is an admirable drink, eſpecially when the weather is very cold.

LIV. *To imitate muſcat wine.*

In a caſk of new white-wine, (that is to ſay, before it has worked) introduce, by the bung-hole, five or ſix tops of elder-flowers dried up. Let theſe flowers hang by a ſtring, and eight or ten days after take them out again. You will obtain a wine which will not differ from muſcat.

LV. Eau-clairette *ſimple.*

Infuſe for twenty-four hours three ounces of cinnamon bruiſed in three pints of brandy. Strain it afterwards through a clean cloth, and add two ounces of good lump ſugar, with a pint of roſe water. Stop well the bottle and keep it for uſe.

LVI. *A violet water.*

Infuſe ſome violets in cold brandy. When theſe have loſt their colour, take them out, and put in new ones. Repeat this till you are ſatisfied with your tincture. When you take the violets out, you muſt preſs them gently; then ſweeten that brandy according to diſcretion; and, if you chuſe you may add again a little orange-flowers for the ſake of the odour.

LVII. *To make a clear and white* Hypocras.

To every one pint of claret, add eight ounces of ſugar, and nine, if it be white wine; half a lemon, four cloves, a little cinnamon, which ſhould be double the quantity of cloves; three grains of pepper; four of coriander;

riander; a little bit of ginger; and eight almonds cut in bits.—Let the whole be bruiſed and put into a pan, with the wine poured over it; ſtir, infuſe one hour, and ſtrain through the flannel bag.

LVIII. *For the white* Hypocras.

To make the white *Hypocras*, three pints of white wine; one pound and a half of ſugar; one ounce of cinnamon; twenty-three leaves of mace; two grains of whole pepper; with two lemons cut in ſlices. Then, when you ſtrain the liquor through the flannel bag, fix a grain of muſk in the pucked end of it.

LIX. *To make the true* Eau-de-Noiau.

Pound one pound of apricots' kernels, without reducing them into oil. Then bruiſe another pound of cherry-ſtones, wood and kernels all together. Put all in a pitcher of five or ſix gallons, in which you put only three and a half, or four gallons of the beſt brandy, and two of water; five pounds of ſugar; and to every one quart of liquor add two grains of white pepper, and eight drachms of cinnamon both bruiſed. Let all infuſe forty eight hours, and then ſtrain the liquor through the flannel bag.

LX. *To make* Eau-de-Fenouillette, *ſuch as it comes from the Iſle of* Retz.

Take one pound of *Florence* fennel, the greeneſt and the neweſt you can find. Put it in an alembick with one ounce of good liquorice-root, three quarts of brandy, and two of white wine. Diſtil by the ſand-bath, two quarts of good eſſence, which you muſt take away as ſoon as the white fumes begin to riſe, becauſe they would undoubtedly hurt the liquor by whitening it.

2. To every *one* quart of this eſſence, perfectly clear and tranſparent, add *ſix* of genuine brandy, and one of ſpirit of wine, with one of boiled water that has been cooled again, in which laſt, juſt before mixing it with the other liquors, you muſt introduce one quart alſo of clarified ſugar, or ſyrup.

3. Make this mixture in a large and wide glazed pan; and, when the doſes are thus introduced together,

ther, taſte the liquor, that you may judge whether or not all are right, and be in time to add either ſome more eſſence of fennel, or ſyrup of ſugar, or brandy, *&c.*—If it taſte bitter or rather tart, you may correct that defect by the addition of a little more cold water which had boiled.

4. After this, bruiſe half-a-pound of ſweet almonds, which put in another pan, with five or ſix quarts of crude water, and boil well with it, then ſtrain through a flannel bag, in order to ſeaſon it as it were, by preparing and greaſing it. When, therefore, the bag begins to run clear, and all which was in it is almoſt gone, ſo that it only drops, change the pan under it, put another clean one, and pour your preparation, ſuch as mentioned in the above n. 3. in the bag, over the ground of almonds which was left in.—Should this proceſs ſeem too troubleſome to you, you may at once mix the half pound of bruiſed almonds in your liquor, and then throw it in the flannel bag, ſtraining, and re-ſtraining it over and over again in that ſame bag, till at laſt it runs clear; to aſſiſt it even in which, you may add half a pint of pure and genuine cow milk. But in obſerving the firſt preſcription, there reſult leſs lye at the bottom of the veſſel in which you keep it for uſe.

5. When you run it for the laſt time, which cannot be before it runs quite clear, obſerve to put a funnel on the mouth of the pitcher or bottle which receives it and over it a crape in order to retain the ſpirits which might evaporate.

6. You may amber afterwards the liquor, with a little powder of muſk and amber, prepared as mentioned in Art. xxxvi. of this chapter. This liquor is of a ſuperior delicacy.

LXI. *To make an hypocras with water.*

Take half a pint of white wine, and ſix times as much water which had boiled; add the juice of two lemons, and five or ſix quarters; the juice of a Sevil orange, twenty-four grains of cinnamon; two or three cloves, one leaf of mace; one pugil, or two, of bruiſed coriander; four grains of whole pepper bruiſed; one quarter of a pound of golden pippins cut in ſlices; half a pound of ſugar; half of a Portugal orange with a few zeſts, and a quarter of a pint of milk. Mix all well; and, two hours after the infuſion, ſtrain it through a flannel bag, and perfume it with a little prepared powder of muſk and amber. Some, however, who do not like amber, content themſelves with increaſing only the doſe of cinnamon.

LXII. *Of the various liquors with which Hypocras may be made.*

You can make hypocras with either of the following liquors; *viz.* Spaniſh wine; Muſcat, Rhyne-wine, Hermitage, Champaign, *&c.* adding to any of theſe wines the ſame proportion of ingredients as above preſcribed; and clarifying well afterwards by means of filteration.

LXIII. *A roſſolis, Turin faſhion.*

In three quarters of a pint of orange-flower-water put to infuſe a little ſtorax, a little muſk, a little amber. Twenty-four hours after theſe ingredients have been put together, ſet them a-boiling for half a quarter of an hour on the fire, then ſtrain it through a cloth. Add next a pint of genuine French brandy. Should any tartneſs be prevailing, add ſome honey or ſugar according to diſcretion. But, if you chuſe to have it ſtronger, then you may add ſpirit of wine till the taſte is come to the degree of ſtrength you would have it.

LXIV. *An admirable oil of ſugar.*

Rinſe a matraſs with vinegar, then put in it ſome dry powder ſugar, or lump ſugar pulveriſed. Keep that matraſs on hot aſhes, turning and whirling it round and flat ways, by means of the neck of the matraſs which you hold in your hands with a cloth, and ſtop it not. The effect is ſuch: the heat occaſions the vapours to riſe about the matraſs; which by turning and whirling it as afore-mentioned, makes the ſugar which is in it re-ſoak and imbibe them again. This operation diſſolves the ſugar, and reduces it into a ſort of oil.

LXV. *Another oil of ſugar, without the aſſiſtance of fire.*

Take a lemon, which hollow and carve out inwardly, taking out all the pulp as ſkilfully as poſſible. Then fill it up with ſugar-candy in powder, and ſuſpend it in a very damp cellar, with a baſon under it. There will drop an exceeding good oil, which is endowed with the moſt admirable qualities for conſumptive people, or them who are affected with a difficulty of breathing.

Note. A little of that oil in liquors gives to any one of them, to which it is added, a very fine flavour.

LXVI. *An admirable eſſence of red ſugar.*

1. Pulveriſe five pounds of the beſt double-refined, or royal, ſugar; which, when done, put along with eight ounces of brandy in a large matraſs, over a ſand bath. Diſtil ſome part of this firſt, on a ſlow fire to avoid burning the ſugar. Re-put the diſtilled liquor over the ſugar again in the matraſs. Continue to diſtil and pour the liquor again in the matraſs over the ſugar till the ſugar becomes red, which will happen at the ſeventh or eighth iteration of diſtillation.

2. Now diſtil out all the brandy, and on the remaining ſugar pour common water, which diſtil alſo, then add ſome more, continuing ſo to do, till you have drawn out all the tincture of the red ſugar.

3. Take next all theſe red waters, and run them through the filtering paper, then diſtil the phlegm on a gentle fire to ſiccity (or dryneſs). Put again this diſtilled phlegm on the reſidue, which place all together in a cold cellar. You will find ſome red cryſtals which pick up, and when dry pulveriſe; then pour brandy over to diſſolve that powder. Thus you will have an admirable quinteſſence of ſugar, which has the virtue of preſerving the radical moiſtneſs of the inſide, and our health.

Note. If you mix a little quantity of this precious quinteſſence in any liquor or cordial, it is a very fine addition to it.

LXVII. *Another oil of ſugar, exceſſively good.*

Cut off the end of a large lemon, of which ſqueeze out the juice; then fill it with fine ſugar, and apply to it again the cut-off piece. Put it in a clean glazed pipkin, which place over a fire of charcoal. The ſugar having thus boiled one quarter of an hour only, put it in a bottle; it never will congeal, and that oil is good for the ſtomach, colds, catarrhs, *&c.* The odour and taſte, are both exceſſively agreeable. The doſe is one table ſpoonful at a time.

LXVIII. *How to extract the eſſential oil from any flower.*

Take any flowers you like, which ſtratify with common ſea ſalt in a clean earthen glazed pot. When thus filled to the top, cover it well, and carry it to the cellar. Forty days afterwards put a crape over a pan, and empty all on it to ſtrain the eſſence from the flowers by preſſure. Bottle that eſſence and expoſe it for four or five weeks in the ſun, and dew of the evening, to purify. One ſingle drop of that eſſence is enough to ſcent a whole quart of liquor.

LXIX. *Eſſence of jeſſamine, roſes and other flowers.*

1. Take roſes of a good colour and freſh gathered. Pick all the leaves, which expand in the ſhade on paper. For two or three days, during which you are to leave them there, aſperſe them once or twice a day, morning and evening, with roſe-water ſtirring them each time, that the roſe-water may imbibe and penetrate the better the leaves of theſe flowers.

2. When this has been performed, put them in a glaſs, or varniſhed veſſel, which ſtop as perfectly as you can, and place in the corner of a ſtable plunged in the hoteſt horſe-dung, which renew three times, that is, every five days. A fortnight after this, place the veſſel in *a balneo mariæ* adapting a bolt-head to it and a receiver, and lute all well. Diſtil the water, on which you will obſerve the eſſence ſwimming. This you muſt divide by means of a wick, or filtering paper. Put the eſſence in a glaſs phial well ſtopped.

LXX. *To draw an oil from jeſſamine, or any other flowers.*

Soak ſome ſweet almonds in cold water, which renew ten times in the ſpace of two days; at the end of which, peel them and make one bed at the bottom of a veſſel; next to this bed, make another of flowers, and thus continue to make *ſtrata ſuper ſtrata* with your almonds and flowers, till the pot is full. Renew and change the flowers till you can judge that the almonds are perfectly impregnated with the odour and fragrancy of the flowers, then extract the oil by the preſs.

LXXI. *To draw the eſſential oil of roſes.*

Pound in a mortar thirty pounds of leaves of roſes with three pounds of common decrepitated ſalt; then put all in a pot well luted, which ſet in a cool place. Fifteen or eighteen days after, moiſten well this matter with common water, ſtirring it with a ſtick till reduced into a pap. Then put it in an alembick with its refrigerator. Make a pretty ſmart fire which will ſend firſt the water, but next will come the oil ſuſceptible of congealing by cold and liquifying again by heat. One or two drops of that oil gives more ſmell a hundred times than the diſtilled water from the ſame roſes.

LXXII. *The oil of cinnamon.*

Bruiſe firſt the cinnamon coarſely in a mortar, and put it a-ſoaking in water, in which add a little pounded tartar, with a table ſpoonful, or two, of honey. Eight or ten days after, place the veſſel on a ſand bath, and you will obtain by diſtillation, an excellent oil of cinnamon.

LXXIII. *An eſſence of jeſſamine.*

Diſſolve, over the fire, one quarter of a pound of ſugar in a quarter of a pint of common water. After having ſkimmed it, boil it to perfect evaporation of all the water; then take it off from the fire, and fling two good handfuls of jeſſamine flowers in it. Cover the veſſel, and one or two hours after, ſtrain the eſſence, and bottle it. It is of an exceſſive agreeable odour. The doſe is one drop only, or two *per* pint of liquors.

LXXIV. *Eſſence of Ambergriſe.*

Set to infuſe, half a dozen of lemon peels in three half pints of ſpirit of wine, and ſet them thus in a cold place for two days, in a veſſel well ſtopped. After that time take off the peels, which ſqueeze through a linen, and put as many freſh ones in their ſtead, which reiterate three different times. When you take off the laſt peels, grind three grains of ambergriſe and one of muſk, which put with the ſpirit of wine in a matraſs over a gentle fire till the amber is perfectly diſſolved. There will fall ſome ground at the bottom of the matraſs, decant the clear part from it in a bottle; and keep it for uſe.

Note. This eſſence might be made with the burning ſpirit of roſes.

LXXV. *Eſſence of* capon *and other* fowls.

Cure the inſide of any fowl by taking away all the entrails. Fill it with lump-ſugar pulveriſed and mixed with four ounces of damaſk raiſins perfectly ſtoned. Sew the fowl up again, and put it in a pipkin, which cover carefully with its lid and lute all round with paſte. Place this pot in an oven, when the bread goes in and take it out along with it. Then uncover it, and ſtrain the liquor through a cloth, with expreſſion of the animal. This eſſence is the greateſt reſtorative for old or enervated people; likewiſe to haſten the recovery of health after long illneſs. The doſe is two large table ſpoonfuls early in the morning faſting, and as much at night three or four hours after ſupper.

LXXVI. *Virginal milk.*

1. Take one ounce and a half of benjamin; ſtorax as much, and one of eaſtern white balm. Put all in a thick glaſs-phial, with three half pints of ſpirit of wine which pour over. Put this in digeſtion over hot aſhes till the ſpirit of wine appears of a fine red colour, then it is done.

2. To uſe it, put only two or three drops of it in half a glaſs tumbler of water, and it inſtantly turns as white as milk.

3. Exteriourly uſed, it whitens the ſkin if you waſh yourſelf with it, it has likewiſe the ſame effect upon teeth by rinſing the mouth and rubing them with it. Interiourly taken, it cures the heats and burning of the extinction of voice.

LXXVII. *How to make the* Hipoteque.

To every quart of water you want to employ, put one quarter of a pound of ſugar, which boil and ſkim carefully. Then add a few cloves, a little cinnamon, and ſome lemon zeſts, which boil all together four or five minutes longer, and ſtrain it through a cloth. To colour it, you may put half a pint of good red wine to each quart of water you have employed; and, to give it a certain *piquant*, you may again add a little brandy if you like.

LXXVIII. *An exceeding good ptiſan.*

Boil well, in ſix quarts of water, one pound of liquorice root; to which you may add one handful or two of coriander ſeed, and a few cloves. Two or three hours after this infuſion, ſtrain the liquor through a cloth, and keep it to make ptiſan, when you want it, by putting a diſcretionable quantity of it into ſome common water with a few lemon peels to give a *pointe*. The liquorice may ſerve twice.

LXXIX. *How to colour any ſort of liquor.*

Bruiſe into a coarſe powder ſome *ſantalum rubrum*, which put into a bottle with a diſcretionable quantity of ſpirit of wine poured over it. In five or ſix hours time the tincture will be very high; therefore it will be fit to give a colour to any liquor you chuſe, by pouring ſome of it into the liquor, and ſhaking it till you find it is coloured to your liking.

LXXX. *A ladies fine* rouge, *not at all hurtful to their ſkin like other* rouges, *wherein there always enters a mixture of lead or quick ſilver.*

The above preparation of *ſantalum rubrum*, modified with common water to take off the ſtrength of the ſpirit of wine, and an addition of one clove, a little civet, a little cinnamon, and the bulk of a filbert of alum, *per* quarter of a pint of liquor, may be uſed with ſafety by ladies to heighten the bloom of their face.

LXXXI. *An exceeding fine ſmelling water, made at a very ſmall expenſe.*

Take two pounds, or two quarts, of roſe water drawn by diſtillation in *balneo mariæ*, which put in a large bottle filled with freſh roſe leaves. Stop this bottle well with a cork, wax it and cover it with parchment, then expoſe it to the ſun for a month, or ſix weeks; afterwards decant the liquor into another bottle in which, for every one quart of liquor, add two grains weight of oriental muſk, and cork it well. This water is of a charming fragrancy, and laſts a great while whatever part of your body you may rub with it. It even communicates the odour to them you touch after having rubbed your hands with it.

LXXXII. *The receipt of the* Eau-imperial, *or Imperial water.*

1. Set a-drying in the ſun for a fortnight, the rinds of twenty-four oranges. Then pound a quarter of a pound of nutmegs, the ſame quantity of cinnamon and as much cloves. Put all together a-ſoaking in a large bottle with roſe water, and expoſe it for ſeventeen days in the ſun.

2. At the end of that term pound one pound of roſe leaves which has been gathered two days before, with two handfuls of ſweet marjoram, two pounds of lavender, two handfuls of roſemary, two pounds of cyprus, two handfuls of hyſop, as much wild roſes and as much betony. Put all theſe together by themſelves in a bottle well ſtopped, and place it in the ſun for two days; then having poured ſome roſe water over them, ſet them again three days longer in the ſun.

3. When all this is done, have an alembic ready in which make a bed of one pound of roſes, and over it another bed of one half of your *aromates*; next, another bed of one pound of violets of march, and over it a bed of the other half part of your *aromates* with a ſcruple of muſk, and as much of ambergriſe. Adopt the receiver to the bolt head, and diſtil the liquor by the gentle heat of a ſand bath.

4. When the water is entirely diſtilled, let the veſſels cool, and having unluted them, put on the *fæces* a pint of roſe water. Lute the veſſels again, and diſtil this water as you did the firſt, it will be far ſuperior to it. Unlute again and put vinegar in the Alembic over the ſame *fæces*, and diſtil it likewiſe as you did the preceeding waters. That vinegar will have great virtues, and eſpecially that of preſerving you againſt an air infected by contagious and peſtilential diſorders.

LXXXIII. *The receipt of the ſyrup of* orgeat *of Montpellier.*

1. Take a pound of barley which you ſoak in water; and, having peeled it grain by grain, make a knot of it in a bit of linen. Put this knot in a pot over the fire with about a quart of water. After having boiled it gently three or four hours, put into the water one pound of ſweet almonds, which mix and dilute well in it. Then take off the knot of barley, which you pound like the almonds and mix like them in the water. Strain all together through a piece of linen; then pound the grounds well and pour all the water over it again, which ſtir all together and ſtrain again. This water will look very thick. Put one pound of lump ſugar in powder, to that liquor, and boil it into a ſyrup over a moderate fire. You will know that the ſyrup is done to its right degree if, letting one drop fall on the back of your hand, it remains in the form of a pearl. Then take it off from the fire, and when cold, give it what flavour you chuſe whether amber, muſk or other odour. Such is the ſyrup of orgeat, which you bottle and keep for uſe.

2. To make the draught which, in coffee houſes or other places of refreſhment, is called *orgeat*, put at the bottom of a decanter half an ounce, or one ounce, of that ſyrup and pour common water over it, then ſhake the decanter well to mix the water and the ſyrup together. It is fit for drinking directly. In the ſummer you may cool it, if you chuſe, in a pailful of ice and water, and you may add ſyrup, or water, to the firſt mixture, according as it wants to make it agreeable to the palate.

LXXXIV. *A receipt to make an imitation of coffee.*

1. Take any quantity of ſuch beans as they give to horſes among their oats, which put into a pan to roaſt over the fire till they begin to blacken. Then take a little honey with the point of a knife and put it among the beans turning them well with it, till ſoaked in the beans, repeating the ſame proceſs ſeven or eight times, or till in ſhort they are quite black, or of a very deep brown like cheſnut colour. Now take them off from

the fire, and while they are quite burning hot put for every large handful of ſuch beans, half an ounce of *caſia-mundata*, with which imbibe them well in ſtirring and ſhaking them in the pan as much as you can, and they are done.

2. Theſe, if you grind in the mill and make coffee of, as you would of the other, it will have the ſame taſte and flavour as the true Moca-coffee, ſo as not to be diſtinguiſhed from it by the greateſt connoiſſeurs.

Note. This coffee may be drank either thick or clear, with ſugar as uſual.

LXXXV. *Another way.*

Take a quart of rye, which clean and roaſt as the beans in a pan till of a fine brown, then grind it. To uſe it, mix it half and half with the true coffee and make it as uſual, by putting it in boiling water and letting it boil five minutes.

Note. This coffee is much uſed among the people of quality who prefer it to the pure and real coffee to ſtrengthen the ſtomach, eſpecially when taken at night before going to bed.

LXXXVI. *Directions for preparing the true coffee.*

1. True coffee muſt be torrified (vulgarly roaſted) in an iron pan, or in a glazed earthen pan, over a clear charcoal fire without flames. Turn it with a wooden ſtick while it is on the fire, to make each grain take the roaſt more regularly and equally; and ſhake it now and then by toſſing it up from the pan into the air, and in the pan again. It is well and ſufficiently roaſted when it is all of a dark brown, or the colour of tan.

2. There is a much better method of roaſting it which is infinitely leſs troubleſome and more handy, by which coffee is exceſſively well and regularly roaſted. It is by means of a certain iron drum made in the form of a lady's muff-box, with a handle at one end, an iron pegg at the other, and a latch-door in the middle. By this door you introduce the coffee, which you faſten in by means of the latch. Then proping it on the top of a chaffendiſh made on purpoſe, in which there is a charcoal fire, you roaſt the coffee by turning the drum over

it with the above-mentioned handle; and thus the coffee roaſts in the moſt regular manner.

3. When the coffee is roaſted, you grind it, in ſmall mills which are made purpoſely for it, and the powder you keep cloſely confined in a leather bag, or better ſtill, in thoſe leaden boxes of Germany with a ſcrewing lid. However it is ſtill much preferable to grind no more at a time than what one wants to uſe at once.

4. The liquor of coffee is made by putting one ounce of that powder to three quarters of a pint of boiling water to make three full diſhes, or four ſmall ones of coffee. And, after an infuſion of five or ten minutes, during which it is kept boiling, the coffee is fit for drinking.

5. Obſerve that the ſtrength of the powder occaſions an efferverſence in the water when you put it in boiling; therefore to avoid that inconveniency which would procure the loſs of the moſt ſpirituous part of the coffee, you muſt take the water from off the fire and pour ſome into a cup firſt, before putting the powder into it, then ſtir with a long handled box ſpoon, the powder in the water, avoiding to touch the bottom of the coffee pot, which would immediately make it riſe and run over. If however, it ſhould mauger all your cares, you then ſtop it by pouring on it the water which you ſpared on purpoſe for it in the cup from the beginning. Then, bringing it to the fire again, you let it boil gently, as we ſaid before, the value of five or ten minutes.

6. There are nice people who, not content with this plain way of preparing the liquor of coffee, make the following additions to it. Firſt, they pour it clear from its ground into a ſilver, or other coffee pot; and, taking red-hot tongs from the fire, melt between them, over the liquor of coffee, two or three large nobs of ſugar, which drop from the tongs into it; then they extinguiſh the tongs themſelves in it afterwards. This ceremony gives it, it muſt be confeſſed, an admirable flavour and moſt agreeable taſte. Some put ſuperadditionally to it again one ſpoonful of the moſt perfect diſtilled roſe-water. This laſt is exceſſively good for

head-akes, if, while boiling hot, filling a cup with it and putting a tea ſpoonful of roſe-water, you ſet yourſelf a-breathing the fumes: and, in order to breathe them more perfectly, throwing an handkerchief over your head; and letting drop over the cup, bring it round again to you, while you keep your noſe over it. Thus you prevent the evaporation of the fumes, and gather them all yourſelf. There is not ſo ſtrong a head-ake which can reſiſt this operation.

LXXXVII. *Directions for the preparing of tea.*

We ſhould not have offered to ſpeak here of the method of preparing the liquor of tea in a nation wherein the ladies make it one of their chief talents and moſt delightful paſt-time and amuſement; and where it is ſo generally uſed, and become in ſome meaſure, ſo neceſſary an evil, that ſuch people might be found amongſt the lower claſs as would rather renounce one meal than go without their tea even in the afternoon. But we have to mention two different methods of preparing that liquor, after the Japaneſe faſhion, whence the beſt tea comes, which, to ſay but little of them, ſeem not unworthy of our notice, and, to do full juſtice to them, may be ſaid to have right to claim preference over the Engliſh method; the one for its ſuperiority in point of flavour; the other for its advantage in point of œconomy.

1. The firſt method is to put in a baſon whatever quantity of tea you like: then, pour boiling water over it: and, after having covered it a reaſonable time, drink it out of that very ſame baſon, without ever adding any freſh water to the tea which remains at the bottom.

2. The ſecond is practiſed by the œconomiſts, who, in order to ſpare the quantity without loſing any of the flavour, reduce the tea into an impalpable powder. This powder being put in the boiling water, incorporates with it in ſuch a manner that it ſeems as if it tinged it only, ſince nothing ſubſides at the bottom. By this means it is evident that a much ſmaller quantity is required of this impalpable powder than of the leaves themſelves: therefore that one pound muſt go infinitely farther, which muſt be of ſome advantage in a

country where duties are ſo immenſe on that comodity.

3. The French, who have no notion of making tea one of their amuſing entertainments and periodical object of viſiting, have a very bad method of making it. As they never uſe it but on phyſick days, and as a phyſick itſelf, they indeed make it as they would any preparation of that kind. In a coffee-pot they boil firſt their water; when this does boil, they put in their intended quantity of tea, and let it throw one or two bubbles, then take it aſide from the fire to let it infuſe about half a quarter of an hour, after which they drink it by baſons full, as here we do water gruel, to aſſiſt the phyſick and promote its effect.

Note. Thoſe who are not uſed to the regular and daily drinking of tea, have not a finer and more powerful remedy againſt indigeſtions cauſed by repletion of the ſtomach, or exceſs of eating. One baſon, or two, of very ſtrong tea, drank hot, will, in leſs than half an hour, unſtop all the conducts, and free all the paſſages.

LXXXVIII. *A receipt for making of chocolate.*

1. Diſſolve in a copper pan ſome pulveriſed royal-lump-ſugar, with a little orange water. When the ſugar is turned into a ſyrup throw in the cocoa, the vanilloe, the cinnamon, Mexican-pepper, and cloves, all, and every one of which, ought to have been firſt reduced into an impalpable powder. Stir all well while it boils; and when you judge it to be ſufficiently done, pour the paſte on a very ſmooth and poliſhed table, that you may roll it and give it whatever form and ſhape you like.

2. To drink it you prepare it with either milk or water, in which, when boiling-hot, you firſt diſſolve it, then, with a box-mill, made on purpoſe, with a long handle, you mill it to froth in the pot in which it is a-making, and pour it afterwards in cups to drink.

CHAP. XII.

SECRETS relative to the CONFECTIONARY BUSINESS.

I. *Preſerved nuts.*

1. GATHER the nuts at Midſummer, or thereabouts, that is to ſay, before the woody ſhell begins to harden under the green rind. Cut open and throw off that green rind : and throw immediately, as you do it, the nut into a pail of cold water, to prevent its blackening. When all are ready, boil them four or five minutes, and throw the firſt water away becauſe it is bitter. Put freſh water which boil again and throw away as the firſt, and repeat this operation, a third and fourth time, if required, to take off all the bitterneſs of the nuts.

2. After they have boiled in their laſt water, take them out and throw them into cold water for fear they ſhould turn black ſtill. From this water change them again into another, cold likewiſe, in which you are to put them one by one, as you take them from the firſt, and preſſing them between your fingers to purge them from all the bitter water they might ſtill contain.

3. Now make a ſyrup as uſual, in which boil ſome lemons peels for the ſake of fragrancy only, taking them all out after a few minutes of their being in, then put the nuts in their ſtead which leave to boil in the ſyrup as long as you think proper.

Note. Some add a few cloves in the ſyrup ; but they ſhould be very ſparing in doing it as this ingredient might tinge the nuts in black.

II. *Orange-flower paſte.*

1. Boil in four quarts of water one pound of the bare leaves of orange-flowers well picked. When theſe are deadened and ſoftened by this boiling, take them out with a ſkimmer, and ſet them to drain.

Then pound them in a mortar with the juice ſqueezed out of two lemons, more or leſs according to your taſte.

2. In the juice, which ſhall come from theſe flowers by pounding, diſſolve one pound of ſugar, and put the paſte in. Stir it a little, then let it cool, and ſhape it afterwards to your liking.

III. *Paſte of Jeſſamine.*

Have one quarter of a pound of jeſſamine flowers, and pick them. Boil them next in water till ſoftened, and they have given their odour to it. Then take the flowers out, which drain, and pound afterwards in a marble mortar. Put ſugar in the water, and boil it to a ſyrup; put the paſte and ſpirit in, while it boils for two or three minutes. Now take it out and ſhape it as you would like to have it.

IV. *Apricot paſte.*

Boil one pound and a half of ſugar into a ſyrup. Put in three pounds of apricots, deterged of their ſkin, and pounded in a marble mortar, *etc.* Then proceed as above for the reſt, obſerving only to chuſe the ripeſt apricots you can find.

V. *Currant Paſte.*

1. Weigh ten pounds of currants, which put into a pan with one of clarified ſugar. Skim them while on the fire, and after they ſhall have boiled a while, drain them on a ſieve, then ſtrain them.

2. Now put this liquor again in the pan and boil it, adding more ſugar in powder, till conſumed and waſted to the conſiſtence of a paſte. Then form the paſte in the ſhape you like.

VI. * *A* verjus-*paſte.*

Chuſe *verjus* half ripe; cure it from all ſtones, and put it in a pan on the fire with a pint of water to every three pounds of fruit. After five minutes boiling take it out and drain it. Squeeze it through a ſieve, then waſte it to thickneſs for a paſte. Now boil as many pounds of pulveriſed lump ſugar, to a ſyrup as there are of fruit. When done, abate the fire, and add the fruit paſte to the ſyrup, continuing to concoct all together on that mild fire for a while. Then give the paſte, as ſoon as it is come to a proper conſiſtence, what ſhape and form you like.

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* See p. 174. Art. xviii.

VII. *How to make ſyrups with all ſorts of flowers, which ſhall be poſſeſſed of all their taſte, flavour and fragrancy.*

1. Heat in a pan about half a pint of water, then put in it ſugar in the proportion to the quantity of flowers you may have; boil, ſkim and thicken it to a proper conſiſtence. When done put your flowers in a glazed veſſel, and cover it over with a linen, thro' which pouring the ſyrup, you ſtrain this upon the flowers. Theſe being thereby quite deadened, put all together again in the ſame piece of linen, and ſtrain it again in another veſſel ſqueezing well the flowers. Then bottle this ſyrup, and keep it for uſe well ſtopped.—Whenever you want to give the flavour of thoſe flowers to any liquor, you ſweeten it with this ſyrup.—To every four ounces of flowers, the quantity of ſugar requiſite to make that ſyrup is generally one pound and a half. —Obſerve that all flowers whatever muſt be well picked of all their cups, ſtaminas, &c. and nothing but their leaves ought to be made uſe of.

VIII. *Raſpberry ſyrup.*

Maſh the raſpberries, and dilute them with a moderate addition of water, then ſtrain them to divide the thick from the clear part. To every quart of this clear liquor put one pound of lump ſugar pulveriſed, and boil all together on the fire in the preſerving pan. Skim and clarify carefully the ſugar, according to art with the white of an egg beaten in water. When the ſyrup is come to its right degree, (which you may know if, by throwing a drop of it in a glaſs of water, the drop ſinks whole to the bottom, and fixes itſelf there, without running out along with the water, when you throw this away); take it off from the fire, and let it cool till fit for bottling.

IX. *Apricot-ſyrup.*

Cut in ſmall bits ſix pounds of very ripe apricots, which boil afterwards in a gallon of water till they are all reduced almoſt to a pulp. Let them cool, then ſqueeze them through a ſieve. Now ſtrain again this liquor through the jelly-bag, and put it in the preſerving pan on the fire, with four pounds of ſugar. Skim, clarify, and boil the whole to a ſyrup, which try as above-directed in a glaſs of water; and, when done, let it cool, and bottle it to keep for uſe.

X. *The* verjus *ſyrup.*

Have *verjus* in grapes, which pick out of its ſtalks, and pound in a marble mortar. Strain it through a ſieve firſt, then through a jelly-bag to get it finer. To two quarts of this juice, which put into a preſerving pan, add four pounds of ſugar, and boil it according to art to a ſyrup.

XI. *A general manner of making ſyrups, applicable to almoſt all ſorts of fruits, eſpecially currants.*

Pick a quantity of red currants of all their ſtalks, and ſqueeze them through a ſieve in a commodious veſſel. Carry this veſſel to the cellar placing it on a ſtool, or any ſuſpended ſhelf from the ground; and, after that juice ſhall have worked three or four days, ſtrain it through a ſieve in another veſſel, then through the flannel bag to get it as clear as poſſible.

2. Now for every two quarts of ſuch liquor, have four pounds of ſugar, which put in a preſerving pan, and melt over the fire, with a little common water to help the diſſolution of it. Boil it thus to the conſiſtence of caramel, without however burning it; and, when at that degree, pour through the holes of the ſkimmer, the meaſured liquor which you muſt boil alſo to a perfect ſyrup according to the afore-preſcribed trials.—All this being well executed, take it off, let it cool, and bottle it for uſe.

Note. All ſorts of ſyrups, ſuch as cherries, raſpberries, and others, may be made in the ſame manner, with this difference only, that they are not to be put to work in the cellar, but employed directly as ſoon as the juice is ſqueezed out of the fruits.

XII. *To make liquid currants-jam.*

Pick four pounds of currants, and clear them of their ſtalks. Put aſide two pounds and a half of them in a diſh, and ſqueeze the other one pound and a half remaining. Now, in a preſerving-pan, diſſolve four pounds of ſugar; and, when come to a ſyrup, put in the two pounds and a half of whole currants along with one pound and a half of juice of the ſame, which boil all together to perfection.

XIII. *To make the ſame with cherries.*

Have two pounds of the fineſt cherries, from which take off both tail and ſtones. Preſs out the juice of them, and put it in a preſerving pan with a pint of water, and four pounds of ſugar. Boil all together to thickneſs, then add ſix other pounds of the fineſt cherries, from which the tails only, and not the ſtones, have been picked. Boil all to a ſyrup, and when this ſtands the trial of the glaſs of water, as mentioned above, all is done, and fit for potting.

XIV. *Another way to preſerve cherries, with or without ſtones.*

Put eight pounds of cherries, either with or without their ſtones, in an earthan pan over a very moderate charcoal fire, to evaporate their ſuperfluous moiſtneſs; which to obtain, you keep inceſſantly ſtirring, taking care to avoid maſhing them. Then add four pounds of lump ſugar pulveriſed, in which continue to ſtir the cherries, and boil all ſo that the bubbles ſhould cover the fruit, and that the ſyrup might hereby be ſkimmed till done to perfection, which you know when a drop of it put on a plate runs with difficulty, being cold; then the cherries are fit to pot.

XV. *To make the liquid raſpberry jam.*

Boil, to a ſtrong ſyrup, four pounds of ſugar. When done, take the pan out of the fire, and put in four pounds of raſpberries well picked, and not maſhed in the leaſt.

Put them in gently at firſt, and with a very particular care, for fear of ſqueezing them; for, when the heat of the ſyrup has once ſeized them, they are not ſo apt afterwards to break. Stir them therefore a little in the ſugar, and when they have thrown in their juice, put them again on the fire, to compleat and perfect the making of the ſyrup, according to rules and proper trials.

XVI. *The* verjus-*jam.*

1. Open four pounds of *verjus* in grapes, with a penknife: and, with the ſame, pick out all the ſtones. Throw theſe grains, as you do them, into a bowl of clean and freſh water. When all is done, take them out again with a ſkimmer, and put them a-draining in a ſieve, whence throw them next into a pan of boiling water.

2. While this is in the water, let it not boil but only ſimmer; and, when the *verjus* begins to ſwim on the top of the water, take it off directly from the fire, and cover it with a cloth to cool gently, while you diſſolve, boil, and clarify four pounds of ſugar to a ſyrup.

3. A little while before the ſyrup is ready, ſet your *verjus* a-draining in a ſieve, then throw it in the ſugar, when this is done to the proper degree. Continue to keep up a gentle and regular fire, till you ſee the *verjus* taking a good green: and, when that is the caſe, give it a good briſk fire, and finiſh it quickly, elſe it would firſt turn black, and then yellow.—Take care alſo not to do the ſyrup too much, for it would be apt to candy.

XVII. *The ſame with powder ſugar.*

1. If you want to do the ſame with powder ſugar, after the *verjus* is picked, and the ſtones taken out as before, it muſt not be thrown in the cold water, but in a dry preſerving pan only, not to loſe the juice which comes out of it when cut.

2. Then to every one pound of *verjus*, add another of ſugar, ſuch as we mentioned, you powder this over the *verjus* which is in the pan, and ſet all on a gentle fire, on which it can only ſimmer and not boil. This

will make it come very fine and green, when you muſt, as in the preceding receipt, be very expeditious in finiſhing it, for the ſame reaſons therein mentioned already.

XVIII. *Peeled* verjus.

Peeled *verjus* is made as follows. Chuſe ſome fine ripe *verjus*, which peel carefully with the point of a penknife and ſtone, then throw into a dry bowl, to preſerve the juice.—Then diſſolve, boil and clarify, according to art, as many pounds of ſugar as you have of fruit, in which, when done to the conſiſtence of a ſyrup, throw in the *verjus* from the bowl. Stir and boil it gently, till it turns green, and finiſh it with ſpeed. Let it cool, and put it in very dry pots.

XIX. *To preſerve* March, *double or ſingle, violets.*

Have one pound of violets, gathered on the ſame day, before the riſing of the ſun; and pick them well of all their tails and green which is about them. Then make a ſyrup with two pounds and a half of ſugar clarified, *&c.* In this ſyrup, while boiling, throw the violets and plunge them all well under the riſing bubbles of the ſugar. Let them not boil more however than five or ſix minutes, for fear they ſhould loſe their colour. And by this method they are done to perfection for them who want a liquid preſerve. But whoever wants a dry preſerve of the ſame, muſt attend to the following preſcription.

XX. *To make a dry preſerve of the ſame violets.*

When you want to make a dry preſerve of *March*-violets, whether double or ſingle, you muſt, as ſoon as they are come to the degree we juſt now mentioned to make them liquid, take them out immediately from the fire, and, while the ſugar is ſtill boiling, take the violets out of it with a ſkimmer, and put them a-draining in a ſieve, calendar, or table cloth, till they are cold. Then put them in another pan over a very ſlow charcoal fire, ſtiring them inceſſantly with your hand, for the ſpace of two hours, or thereabouts, and powdering over them, at diſtances of times, ſome of the fineſt royal loaf ſugar, in ſmall quantities at a time, in order to dry and candy them.

XXI. *Another way to make them liquid.*

If you want to make the beſt uſe of the ſame clarified ſugar, which ſerved to make dry preſerved violets, you may do it by putting half a pound, or thereabouts, of theſe flowers in the ſame ſyrup then boiling on the fire, and there let them ſoak and lye for five or ſix minutes, they will then be liquid as in Art. xix.

XXII. *To preſerve apricots, when neither too ripe nor too green.*

Chuſe a quantity of apricots, juſt turned, but not ripe, and the fruit of which has ſtill all its hardneſs and greenneſs. Take out the ſtones, by means of a ſmall-bladed-knife, or ſtick, which introduce at the point of the apricot, till you feel the ſtone, and then puſh to make it come out at the tail. When you have thus prepared four pounds of them, (weighed after ſtoning) have a large and wide pan of boiling water on the fire, in which throw them in order to blanch them, taking great care that they ſhould not ſpot in the water. When blanched, take them out with a ſkimmer, and ſet them a-draining on a ſieve. Then boil and clarify four pounds of ſugar, and make it into a ſyrup. When done, take it out, and put in your apricots ſoftly, one by one. Then ſet them again on the fire, and give them two or three bubbles. As ſoon as after which, take the pan from the fire, and let them cool. By this means they throw off their ſuperfluous moiſtneſs and take the ſugar. A certain while after, that is, when cold, take them from the ſugar with a ſkimmer, and ſet them a-draining, while you put the ſyrup on the fire to boil. When drained, put them again into the boiling ſyrup, and give them five or ſix bubbles more, after which let them reſt two or three hours in the ſyrup as they are, or even till the next day if you like it, at the end of which term you muſt put them again on the fire, and finiſh them. They will be what is called Liquid, and you may pot them in that ſtate.

XXIII. *How to make a dry preſerve of them.*

When you want to make them in dry preſerve, or what is called *mi-ſucre,* you muſt always proceed from beginning to end as above-directed, till the time they are fit for being potted in liquid, inſtead of which you take them again once more out of the ſyrup, and ſet them a-draining, then range them on ſlates at regular diſtances, ſo that they may not touch one another. When thus prepared, powder on them, through a ſilk ſieve, ſome of the fineſt loaf ſugar pulveriſed, and put them in the ſtove to dry. When dry on that ſide, take them out from the ſlates, and turning them the other ſide upwards on a ſieve, or ſome ſorts of ſmall light willow grates made on purpoſe; powder them again with ſugar as before, and when equally dried and cooled, you may put them in boxes with white brown paper.

Note. Some like to have them done in halves, otherwiſe called, in genteel term of art, *en-oreilles* (in ears), which changes nothing in the proceſs of the operation, but that of opening them in two from the beginning. —All ſorts of plumbs, and the peach, admit of the ſame mode of operation, to make them into dry or liquid preſerves, either whole, or in ears.

XXIV. *To preſerve green apricots.*

1. Gather yourſelf your apricots when green, that you may be ſure they are all very freſh, and have not had time to wither. Then pound ſome ſalt in a mortar and make it as fine as you poſſibly can, and putting a handful of this ſalt in a napkin, with as many apricots as you think you can well manage; fold the napkin lengthways, bringing the long ſides of it over the apricots, and taking the ends of it gathered one in each hand, ſhake and roll them backwards and forwards with the ſalt in the napkin, adding one ſpoonful or two if requiſite, of vinegar, which pour over them when thus agitated. This proceſs is with intention of curing them of their down, and when that is obtained, throw them in cold water to waſh them well, and continue ſo to do with the reſt, till they are all done.

2. After having thus well waſhed them in that firſt

water, put them into new cold water, to waſh them well in it over again, after which put them a-draining on a ſieve. Then boil ſome water, and throw them in, wherein they are to be kept boiling till they become ſoft, and which you take care to try now and then, by taking one or two with the ſkimmer, and thruſting in a wooden toothpick, or very fine ſkewer; if this get an eaſy admittance in the apricots, they are ſufficiently done. Now take the pan from the fire without delay, and, with the ſkimmer, take the apricots from that boiling water into ſome cold.

3. When your apricots are in this ſituation, make a ſyrup, by diſſolving, boiling, and clarifying, according to art, as many pounds of ſugar as you have got fruit, and, having put in your apricots, let them boil very gently. They will immediately turn of a very fine green. You muſt not preſs on the finiſhing of them; on the contrary, take them off from the fire, and give them a couple of hours reſt, during which they ſoak in the ſyrup, throw off their moiſtneſs, and take the ſugar. After they have thus reſted a while, ſet them again on the fire, and finiſh them as faſt as you can, that they may preſerve their greenneſs.

Note. There are ſome people who get the down off the apricots by means of a lye made with greenwood, or pearl, aſhes, in which they waſh them once firſt, and then twice afterwards, in other pure and clean cold water. But the firſt method we have recommended with ſalt, is the beſt, the moſt expeditious, and that which procures them the fineſt green.—When you want your preſerve to keep, you cannot do your ſyrup with leſs than pound for pound of ſugar with fruit; but if they be not to keep, a little leſs may do.

XXV. *To make the* Cotignac *liquid.*

Suppoſe you to have fifteen pounds weight of quinces, you muſt have three pounds of ſugar, and a gallon of water, all of which you manage as follows.

1. Pare the quinces and cut them ſmall, after having taken away the cores and kernels. Put your gallon of water a-boiling, then put them in, and let them boil there, till reduced almoſt to a pulp. Strain all

through a cloth, and ſqueeze it well into a bowl. When done, ſet it on the fire in the preſerving pan, with four pounds of ſugar, and boil it gently, till taking ſome with the ſkimmer, and letting it fall on a plate, it ſhall riſe up like a jelly. Then puſh on the fire, and in five minutes afterwards the *cotignac* is done.

Note. If you put the peel and kernels into a knot, and boil them in that manner in the water, the jam will ſooner be red.

XXVI. *Another way.*

Pare four pounds of quinces, which cut into bits, and put in the preſerving pan, with a ſufficient quantity of water to ſoften them by boiling gently. Then add four pounds of lump ſugar, and continue boiling the whole till it is half done. When this is the caſe, ſtrain all through a calendar, and put it again in the ſame pan over the fire to boil it to perfection, which you know, when by ſtirring the jam hard, you may ſee the bottom of the pan quite plain, and entirely uncovered. Then it is time to take the pan from the fire, to let it cool and pot the *marmalade*.

XXVII. *How to make the caramel.*

Boil ſome ſugar, till it be almoſt in powder; then, for every half-pound of ſugar, throw in one ounce of ſyrup of capillaire, and immediately throw the whole into cold water.

XXVIII. *To make* Raiſinet.

Take any quantity of black grapes, the beſt and the ripeſt. Pick the grains from the ſtalks, throw away theſe, and ſqueeze the others between your hands, and put both the hudds and the juice in the preſerving pan, to boil on a clear and ſmart fire. Neglect not to ſtir well this liquor, all the while it is a-boiling, with a wooden ſpatula, for fear it ſhould burn at bottom. When you perceive it may have waſted a third, or thereabouts, ſtrain it through a ſheer-cloth, to expreſs well all the juice out of the hudds, which laſt throw away. Put your juice again into the pan to boil, and ſkim it ſtirring as before with the ſpatula, eſpecially towards the end when it begins to thicken. To know when it is done, put ſome on a plate, and if, by cooling it becomes ſolid, it is a ſign it is quite ſufficiently done. Then is the time to take it off from the fire, and let it cool, after which you pot it into ſtone jars.

XXIX. *To preſerve quinces in red.*

1. Chuſe the moſt even quinces not ſtoney, and vulgarly called female quinces. Cut them into four, or eight quarters as you like beſt, then pare and core them. If you meet any ſtones in the quarters cut them off too. In proportion as you prepare them thus, throw them into cold water. Save the peels and cores; and, mixing among them, when all your fruits are prepared, ſuch of them as are ſmall, crooked, and otherwiſe ill formed, and unfit to go along with the others, boil all in a ſufficient quantity of water to make a ſtrong decoction, which paſs when done, and ſtrain through a ſtrong cloth into a pan.

2. In this decoction, put your other quarters, and boil them in the preſerving pan. When ſufficiently done, put as many pounds of ſugar as you had fruit, or three quarters of a pound at leaſt. Boil this gently, and in a ſhort time the quinces will become moſt beautifully red. When you ſee they are come to perfection, take them off the fire, and pot them; but do not cover them for a day, or two, after.

XXX. *To do the ſame in white.*

1. To do the ſame preſerve in white, you muſt not make the decoction of the parings. On the contrary when the fruit is pared and prepared as before mentioned, you muſt throw it into boiling water, and there let it continue to boil on the fire, till ſufficiently done: then, take it out with the ſkimmer, and put it a-draining on the ſieve.

2. While they are thus a-draining, make a ſyrup; and, when this is ſkimmed & clarified properly, put your fruit in it boiling. Ten minutes after, or there-abouts, take the pan from the fire, and let all reſt a while, then ſqueeze on it the juice of a lemon to whiten the quinces: and, ſetting them again on the fire, finiſh them quickly.

XXXI. *To preſerve* Rouſſelet, Muſcadine, *and other ſorts of pears.*

1. Chuſe *Rouſſelet*-pears, which ſhould be neither too ripe nor too green; which pare very neatly, and boil in water till properly done. Before boiling them, obſerve to ſtrike them to the heart from the head, with the point of a knife. When properly done in the boiling water, take them out with the ſkimmer, and throw them into freſh water.

2. Make next a ſyrup, with as many pounds of ſugar as you have pears, in which you put theſe and boil them five or ſix minutes at firſt, then take them from the fire, and let them reſt a while to throw out their ſuperfluous moiſtneſs, and take the ſugar. When that is done, ſet them again on the fire, to compleat them quickly.

Note. By doing as above, you will have a liquid preſerve of pears; but if you want to have them dry, follow the directions given in Art. xxiii. with reſpect to apricots.

XXXII. *A preſerve of green almonds.*

1. Prepare a lye of pearl aſhes, in which waſh your almonds to rub their down off. Waſh them next in another common clean water, whence throw them into boiling water, in which they are to boil till ſoftened, ſo as however, not to open themſelves, and which you try now and then, by thruſting a pin or a fine ſkewer in ſome of them. When done enough, ſkim them out from this water, and throw them into cold, then ſet them a-draining in a ſieve.

2. Now make a ſyrup, and throw your almonds in while boiling. They will immediately recover their green; then finiſh them as expeditiouſly as you can, for fear they ſhould turn black.—If you want to keep them, you muſt put pound for pound of fruit and ſugar.

XXXIII. *To make the ſame into a* compote.

To make a *compote* of almonds, you muſt, after having ſoftened them by boiling in water, put no more than five or ſix ounces of ſugar to every pound of fruit. Then boil the ſyrup into a pretty ſtrong conſiſtence, becauſe it liquifies ſufficiently afterwards by the moiſtneſs which the fruit returns.

XXXIV. *To make dry portable cherries.*

Prepare four pounds of fine *Kentiſh* cherries, by depriving them both of their ſtones and tails. Then have one pound, or one pound and a quarter at moſt, of ſugar, which put a-diſſolving on the fire in a point of water. When this begins to boil, throw your cherries quickly in, and make them boil thus in the ſugar about one quarter of an hour, or till the ſyrup begins to thicken. When they are ſufficiently done, take all off from the fire, and let cool, after which put them a-draining in a ſieve; then, putting three or four of them one in another, range them on ſlates, and powder, through a ſieve, ſome ſugar all over them, and place them in the ſtove, or, for want of this conveniency, in a baker's oven, after the bread has been taken out. No ſooner they are dry on this ſide, but you muſt turn them all on the other, and powder them over with ſugar as you did before; dry them alſo in the ſame manner, and box them when cold, to keep for uſe.

Note. Plumbs may be done in the ſame manner. This ſort of preſerve is very agreeable, and may be carried any where. Few perſons are acquainted with the method of making it.

XXXV. *The preſerve of orange-flowers, whether in looſe leaves, or in buds, or even in grapes or bunches.*

Have four or five pounds of orange-flowers; and that you may loſe nothing, but on the contrary, make the beſt you can of them, put them in alembic with two gallons of water. Lute well the veſſels, and diſtil about two quarts of good water. Stop then the diſtillation, let the veſſel cool; and, unluting them, put the orange-flowers a-draining on a ſieve. When done, throw them afterwards in cold water, ſqueezing over them the juice of a ſmall lemon to whiten them. Now take them out again from this water, and put them in a very light and thin ſyrup, not much more than lukewarm, for them to take the ſugar. When all ſhall have become quite cold, ſkim the flowers out of this ſyrup, and ſet them a-draining in a ſieve placed over it.

After they are well drained, boil that ſyrup for five or ſix minutes, then let it cool again, till only lukewarm, and then put your flowers a-ſoaking again for twenty-four hours in it. On the next day ſkim them off again and repeat the ſame operation over again exactly as you did the day before. At laſt ſkim them out once more from the ſugar, and put them a-draining for the laſt time, after which ſcatter them on tin ſheets, ſlates, or ſmall boards, and having powdered them over with ſugar, put them a-drying in an oven; when dry on this ſide, turn them on the other, and repeat the ſame again; till all is done, and fit to put in boxes.

XXXVI. *A marmalade of orange flowers.*

1. To make a marmalade, or jam, with the ſame ſorts of flowers, take one pound of them, which waſh and dry in a cloth, and having put them in a mortar, give them a few ſtrokes of the peſtle only to bruiſe them a little, not to maſh them quite, and to whiten them ſqueeze the juice of a lemon over them.

2. Now clarify three pounds of royal ſugar; and, when come to a proper ſyrup, throw in your pound of orange-flowers, which boil in five or ſix minutes, and let cool. When cold, ſtir all well with a ſpatula, in order to mix well, and equally, the flowers along with the ſyrup, then put the jam into pots; and, having left them twenty-four hours uncovered, paper them over as uſual.

Note. They who have no alembic, being deprived of the opportunity of having orange-flower water, muſt boil their flowers in a large quantity of water in the preſerving pan, and when done, change theſe flowers immediately into cold, or ſome other boiling water. Theſe flowers will aſſume a greater whiteneſs if you ſqueeze the juice of a lemon into this ſecond water. Then drain it, and proceed for the reſt as directed in the preceding article.

XXXVII. *To make an apricot, or peach, jam.*

1. Chuſe the ripeſt apricots, which clean of all hard knobs, ſpots, and rotten parts. Cut them in ſmall bits in a preſerving pan, which you have previouſly weighed. If you have put four pounds of apricots in

it, reduce them by boiling over a gentle fire to two pounds only, which you muſt find out by weighing pan and fruit together, now and then till you find your right weight. When this is the caſe, put among your apricots thus reduced to one half, two pounds of lump ſugar pulveriſed, and mix all well for the ſpace of five minutes over the fire, then take all off, let it cool, and pot.

2. This ſame compoſition, you may, if you will, put into paſte on ſlates, or in tin moulds. There is not more exquiſite eating. You may alſo, with two or three roaſted, or baked, apples, mix a couple of ſpoonfuls of this marmalade, and make exceſſive nice tarts with it, or again with pears baked under aſhes, nothing can be more delicate.

XXXVIII. *An apricot jam, after the* French *way.*

1. Chuſe ſuch ripe apricots as are fit to eat. Peel their ſkin off very neatly, and give them a bubble or two in boiling water, ſo as not to have them diſſolve however in the water, and put them a-draining. When done, maſh them through a ſieve, and let them reſt a certain time to evaporate their ſuperfluous moiſtneſs.

2. While this is doing, make a ſyrup with as many pounds of ſugar as you have fruit, and take it off from the fire; when the ſyrup is cooled, put your fruit in, which ſtir well with a ſpatula, then put all again on the fire for ten minutes in order to make the fruit take well the ſugar. When the jam is well done, fine and tranſparent, you pot it.

XXXIX. *To make raſpberry, currants, and cherry jam.*

All theſe fruits muſt be ſqueezed through a ſieve, then clarify the ſugar, and throw in the juice, which you bring to perfection afterwards as directed in the laſt receipt.

Theſe jams may alſo be made into paſte; and, if you require to have them clearer, more pellucidous, and ſuſceptible of drying quicker, you may put a quarter of a pound more ſugar, than the preſcription, to every one pound of fruit: but it muſt be confeſſed that the paſte will ſo much leſs have the flavour of the fruit.

XL. *To make a good currant jelly.*

Have four pounds of currants after picking. Then, diſſolve in water four pounds of loaf ſugar, which make into a pretty ſtrong ſyrup. Now, put the currants in, and boil ſo hard as to have them all over covered with the bubbles. Six minutes after ſuch boiling, take the pan off from the fire, and pour the contents in a ſieve to ſtrain off all the liquid. Put this liquor again in the pan and boil it, till taking a drop with the ſkimmer, and pouring it on a plate, it congeals as it cools. Then it is fit to pot.

They who want to ſpare the ſugar, and have a great deal of jelly at a ſmaller expence, may employ four pounds only of ſugar to ſix of currants, after picking, and proceed as above. They muſt however obſerve to do the jelly rather more than in the preceding caſe, when the fruit and the ſugar are put pound for pound.

XLI. *To make a* verjus *jelly.*

Take ripe *verjus* which pick from its ſtalk. Put it in a pan with a couple of glaſſes of water. Let it boil for two or three minutes, and when deadened, throw it in the ſieve to drain. Then put the juice on the fire with the ſugar, and boil it into a jelly, to pot it afterwards.

XLII. *To make an apple jelly.*

1. Cut in ſmall bits a dozen of gold rennets, and put them in the preſerving pan, with three or four quarts of water, which boil to the reduction of one half. Throw all in a cloth to ſtrain it through, and draw all the juice from the apples. Then, to this, put four pounds of ſugar which boil to a jelly.

2. To give a *pointe* to that jelly, you may add the juice of one lemon, and even the raſping of one half of its rind.

XLIII. *To make the conſerve of orange-flowers.*

Take one quarter of a pound of orange flower-leaves well picked, which chop as ſmall as you can, and wet over by ſqueezing the juice of a lemon. In the mean while clarify, and make into a ſtrong ſyrup, two pounds of ſugar, then take it off the fire and let it reſt a while. Some time after, ſtir it all round, and in the middle, with a ſpoon; and having thrown in your orange flower, prepared as before directed, mix all well with the ſame ſpoon and put part of this compoſition into paper moulds, or caſes, and form the reſt into drops, or lozenges, on ſheets of paper.

XLIV. *A conſerve of violets.*

Pound in a mortar one quarter of a pound of violets well cleanſed and picked, which, while you are a pounding, you muſt wet with a quarter of a pint of boiling water. When it is thus wetted and pounded ſtrain it through a flannel cloth; then having melted and clarified two pounds of ſugar into a ſtrong ſyrup, take it off the fire, let it reſt and pour in afterwards what you have expreſſed from the pounded violets, ſtirring all well together with the ſpoon, and proceed, in every other reſpect for the reſt as directed in the precedent article.

XLV. *A conſerve with raſpings of Portugal oranges and lemons, conjointly or ſeparately.*

Put your raſpings to dry in a plate whether ſilver or china, it does not ſignify. Prepare ſome ſugar into a ſyrup not quite ſo ſtrong as recommended in the two laſt receipts. Take this from the fire, and ſtir it with a ſpoon, both round the pan and in the middle; then throw in your raſpings of lemon or orange, or even both together; and, having ſtirred all well, put it in the moulds and make your drops.

XLVI. *To make almonds* a-la-praline.

Make a ſtrong ſyrup with one pound, or one pound and a quarter of ſugar. Then throw in two pounds of almonds, which ſtir well with a ſpatula, for fear they ſhould ſtick to the pan. Therefore ſtir them well till they have conſumed all the ſugar; then place them over a ſmall fire to diſſolve all the little knobs of congealed ſyrup which remain about the pan, and ſtir it till there is none left, and all ſhould abſolutely ſtick to the almonds. Have a great care that they ſhould not turn into oil, and take notice when they pop, becauſe it is a ſign they are done. Take the pan from the fire, and cover them with a cloth; and, when cold, put them in boxes.

XLVII. *To whiten cherries, currants, raſpberries, grapes, ſtrawberries and other ſuch like fruits.*

Beat one, or two, whites of eggs with orange flower-water, then ſteep your fruit in, and roll it afterwards in a diſh wherein there is lump ſugar pulveriſed and ſifted very fine. When it is well covered over with ſugar, put it on a ſheet of paper and ſet it in the ſun, or before a clear fire, and at a certain diſtance of it, only to dry it. You may thus ice all ſorts of fruits ſuſceptible of icing.

XLVIII. *To make iced maroons.*

Slit the bottom ſkin of every one of your cheſnuts, and loſen it at that part without peeling them yet, then throw them into boiling water. When you think they have boiled ſufficiently take a few of them and try whether or not a pin gets eaſily into them by the ſlit you have made. If it do, take the maroons from the fire, then peel them one after another as expeditiouſly as you can while ſtill burning hot, and put them in a dry ſieve. In the mean while, boil ſome new water, and when all are peeled, put them all into it, to make them throw all their reddiſh liquor without putting them any more over the fire, but only and meerly into the boiling water which you juſt took out, when they have well cleanſed themſelves in this water, take them off with a ſkimmer and put them in a light thin ſyrup, in which boil them gently for ten minutes, then take them off the fire, let them reſt ſo that they may take the ſugar, then ſkim them out of it and put them in a ſieve to drain. Now add ſome more clarified ſugar to your thin ſyrup, which boil together to a ſtronger one: then put your maroons in, one by one, ſet them on the fire again and boil all till the ſyrup comes to be what confectioners call *a-la-plume*. Then take them off the fire, and let them reſt. Some time after, take a ſpoon and cauſe a certain agitation with it in the ſyrup by ſtirring it on one ſide of the pan ſo as to cauſe a thick and muddy look in the ſyrup no farther than the width of your hand. While the ſyrup looks thus, take your maroons gently one by one between two forks, and ſauce them well in that thick part of the ſyrup, then put them on a ſieve over a diſh.

XLIX. *To make the* Royal-maſſepins.

1. Take one pound of ſweet almonds which throw in a bowl filled with boiling hot-water, to help the peeling of them. In proportion as you peel them, throw them into another bowl filled with cold water. Then drain them, and pound them in a mortar, watering them at the ſame time ſo as to make them into a kind of paſte. Now put in the preſerving pan one pound of ſugar with a ſufficient quantity of water to diſſolve it. Boil it to *a-la-plume*, and then take it from the fire to dilute your paſte into it. Set the pan again on the fire, and turn your paſte over and over till it quits the pan freely without any adheſion at all. When, paſſing your hand on the paſte, you ſee it ſmoothening without ſticking to your fingers, it is a proof that it is done. Now take it from the fire, and dreſs it with your ſpatula on ſmall boards covered with ſugar, in the form of ſmall oblong cakes of what ſize you like.

2. When the paſte is all employed and dreſſed in that form let it grow quite cold. Then take every one cake one after another ſingly, and give each of them by itſelf half a dozen of ſtrokes of the peſtle in a mortar to render that paſte more delicate, adding alſo as you pound it thus, half the white of an egg or a whole one if requiſite, *per* pound or pound, and a half, of paſte. You may likewiſe, if you chuſe, introduce in the paſte, while you pound it, a little orange or lemon peel preſerved. Then you roll it again in the pulveriſed ſugar, and dreſs it again on the ſame boards as before either in oblong cakes, or in round rings. When done take and ſteep it in whites of eggs beaten with orange flower-water; and, draining it well when you take it out, roll it again next in pulveriſed ſugar, then put it on a ſheet of paper. When every one has thus been worked all through this proceſs, put the ſheet of paper, thus loaded with theſe

maſſepins, in an oven, ſo moderately hot as not to affect them too much, and give them only a very faint colouring.

3. They who want their *maſſepins* to taſte of the bitter almonds, may introduce one quarter of a pound, or even half a pound of bitter almonds among the pound of ſweet ones, from the very beginning and for the reſt, proceed as directed from the time of peeling.

L. *To make Savoy biſcuits.*

1. Separate the whites of four eggs from their yolks. Beat them by themſelves to a very hard froth, at which time, you then put the yolks previouſly well diluted, and continue beating all well together. Now introduce half a pound of ſugar pulveriſed, and beat them all together again.

2. When you are ready to dreſs you biſcuits, have a quarter of a pound of ſuperfine flour, which incorporate by beating well, then dreſs it on a ſheet of paper in the form you like beſt, either round or oblong, and ice them over with ſugar in powder to prevent their running. Put them in an oven, no hotter than for maſſepins ; and, after a reaſonable time they will be done.

LI. *To make bitter almond-biſcuits.*

Pound in a mortar three quarters of a pound of bitter, and one quarter of ſweet, almonds. When thus pounded, have eight or nine yolks of eggs which beat up and mix with your paſte of almonds, and two pounds of pulveriſed lump ſugar. This paſte muſt be a good deal harder than that of the Savoy biſcuits. Then, with the end of a knife taking ſome of that paſte, you place it in rows on a ſheet of paper, in what form or ſhape you like, and ice it with pulveriſed ſugar; then put it in the oven as you do the Savoy-biſcuits or *maſſepins*.

LII. *To make* meringues.

Beat well into a hard froth, four whites of eggs : then introduce in them four large table ſpoonfuls of ſugar into a ſubtile powder, and a tea-ſpoonful of orange flower-water, with a little muſk and amber prepared. Put this paſte on a table, and roll it with the rolling pin to the thickneſs of a crown piece, or double that thickneſs at moſt. Cut it in the form and ſize you like, bake it half way, or little more, and take it out. Make a ſtrong icing with the white of an egg, ſugar pulveriſed, and the juice of a lemon, in order to whiten that ice which you thicken as a ſtrong pap by means of the ſugar in powder, ſteep your pieces of cut paſte one by one, and ſet them to dry under the lid of the ſtove covered with fire, on the top of it.

LIII. *The ſame with cinnamon, or chocolate.*

The *meringues*, with chocolate, or cinnamon, are made as follows. Pound and ſift into ſubtile powder and diſtinctly each by itſelf the cinnamon, and a quantity of the above deſcribed paſte, after a thorough drying. Then mix theſe two powders and a diſcretionable quantity of ſugar together in the ſame mortar, by means of whites of eggs b[illegible]en, continuing to pound the whole till the paſte be firm and however flexible. Now ſpread it with the rolling pin to the thickneſs you like, and cut it in the ſhape and form you pleaſe, then bake and ice it as uſual. If you will not have your *meringues* too hard, bake them on one ſide only, and ice them on the other with orange flower-water and ſugar. When you dry them let it be with the lid of the ſtove, and take care not to make the fire too ſtrong, leſt it ſhould blow the ice. When properly dryed, the ice is as clear and tranſparent as real glaſs.

Note. With the chocolate the ſame proceſs is to be obſerved as with the cinnamon.

LIV. *Another way of icing, contrived for the ſake of certain ſcrupulous perſons.*

For the ſake of them who, in time of Lent have ſome ſcruple to eat meſſes wherein their enters any thing belonging to eggs, you may contrive the following method of icing. Take ſome gum adragant, which put into a glaſs tumbler with a little common water and orange-flower ditto. When perfectly diſſolved, ſtrain it through a cloth, and uſe it inſtead of whites of eggs for pounding your paſte in the mortar as above directed. Then for the laſt icing, uſe orange flower-water and ſugar, pulveriſed as above.

LV. *To make* gimblettes.

Suppoſe you take one quarter of a pound of flour, then one ounce and a half of ſugar in powder, or two ounces at moſt, will be quite ſufficient with two or three yolks of eggs and one white only, then a little orange flower-water, with a very little quantity of muſk and amber prepared. Knead all together, ſo as to make a ſtiff dough with it; to obtain which you diſcretionally increaſe the quantity of flour if neceſſary. But ſhould it become ſo ſtiff that you could not manage it to put in rings; then you muſt put it in the mortar, and ſoften it with a few ſtrokes of the peſtle and a little orange flower: or even mere pump water. Then you ſpin it in rings; which, when made, you throw into boiling water and give a bubble or two; and afterwards, dreſs it on ſheets of paper, and bake it till it is dry and brittle.

LVI. *To make* biſcotins.

Boil one pound of ſugar to a ſyrup *a-la-plume*: then throw in half, or three quarters of a pound of flour. Stir quickly all together to make a dough, after having previouſly taken the pan off from the fire, then take this paſte out of the pan and dreſs it on a board, or table, covered with pulveriſed ſugar. Knead it quickly, and pound it next in a mortar with the white of an egg, a little muſk and amber prepared, and orange flower-water. When it is thus knead and pounded pretty ſtiff, make it into ſmall balls of the ſize of a ſmall apricot-ſtone, then throw them into a pan filled with boiling water. Firſt they fall to the bottom: but, as ſoon as they riſe on the top you muſt ſkim them out of this water, and put them a-draining in a ſieve. Then range them on a ſheet of paper, or tin, and place them in the oven to bake and make them take a fine colour.

Note. If, when baked, you find any difficulty in taking them out of the paper; wet a napkin and wring it, then ſet the ſheet of paper on it, ſoon after they will eaſily come off.

LVII. *To make lemon lozenges.*

Take one, or two, whites of eggs, which beat with ſome orange flower-water. Then add as much pulveriſed ſugar as they will ſoak up, to make a pretty ſtiff paſte of it. Introduce alſo the raſpings of lemon peels. All being well incorporated, roll it all into ſmall balls of the bigneſs of your thumb, which range on a ſheet of paper and flatten afterwards a little, then put them in the oven to bake.

LVIII. *How to preſerve orange peels all the year round, but eſpecially in the month of May.*

Cut ſome oranges in four quarters and peel thoſe quarters. Then put the peels to ſoak in water for about ten or twelve days; after which term, dry them between two cloths, and put them in a caldron with a ſufficient quantity of honey to half cover them. Boil them thus one minute or two, ſtirring them inceſſantly. Then take them off the fire, and let them reſt till the next day, when you put them on again, and let boil ten minutes or a quarter of an hour. For ſix or ſeven days repeat the ſame operation, taking great care inceſſantly to ſtir, turn and re-turn them all the while they are on the fire. On the eighth day change the honey, and in the freſh honey boil them as long as it would take you to repeat your creed, then pot them with that new honey in which they boiled laſt, and keep them for uſe after having added ſome cinnamon, cloves and white ginger, mixed and both reduced into ſubtile powder.

LIX. *To make a paſte with whatever fruit it may be.*

Take whatever quantity you pleaſe of any fruit, which peel and boil well in water, then ſtrain the juice through a ſieve, or a flannel. Now weigh ten pounds of that paſte of fruit, and ten more of ſugar pulveriſed. Mix firſt five pounds of ſugar with ten pounds of fruit, and put it a-doing on the fire; then mix four more pounds of your ſugar. When done, put with a ſpoon (on iron plates previouſly powdered with ſome of the pounds of ſugar which were left) ſome of that paſte from diſtance to diſtance. Set theſe to dry on a chaffendiſh, in the ſun, or in the open air, turning and re-turning them often, and powdering them morning and evening with ſugar. When theſe little cakes are perfectly dry, put them in Dutch deal boxes and in white papers, that they may not touch each other.

Note. In the ſame manner you may make the conſerve of roſes, buglos, burrage, *&c.* even red currants.

LX. *The Genoa paſte.*

Take equal quantities of quinces and odoring apple's pulp. The pulp is prepared thus: peel theſe fruits, and clear them of their kernels. Then pound them in a mortar with roſe water, and ſtrain them through a ſieve. Put the paſte on the fire to dry by degrees, ſtirring it all the while with a wooden ſpatula. Then add as much ſugar in powder as you have pulp, and go on in doing it, till it has acquired the conſiſtence of a paſte.

LXI. *Quinces-jam, and other fruits.*

Boil, in a ſufficient quantity of water, both the fleſh and the peelings of your fruits to perfect ſoftneſs. Then let the decoction clarify in the ſun, before the fire, or by reſidence. When ſettled, decant it and adding to the liquor the proper quantity of ſugar, boil it to a jelly.

LXII. *Genoa Biſcuits.*

Take four ounces of ſugar in powder, one pound of flour, a little coriander and aniſeſeeds in powder, which mix with four eggs and as much luke-warm water as needs to make a dough of the whole. Bake it in the oven; and, when baked, cut it in five or ſix ſlices which you bake again.

LXIII. *The Queen's cakes, or biſcuits.*

Take twelve ounces of flour, one pound of fine ſugar in powder, and twelve eggs, from which take out three yolks, with a diſcretionable quantity of coriander and aniſeſeeds. Beat, and mix well all together, till it comes to a thick but running paſte. Some add yeſt to make it lighter and riſe higher. Divide this paſte into ſeveral paper caſes, or tin ones, of the width of two fingers and twice as long, which put in an oven to bake: but take care that it be not too warm.

LXIV. *Macaroons.*

Pound well one pound of ſweet almonds, moiſtening them with roſe-water. Introduce one pound of ſugar and beat all well in a ſoft paſte, which you put round a diſh and half bake in a luke-warm oven. When the paſte is half done, cut it in ſmall round pieces, and having ranged them on a ſheet of paper, finiſh baking them.

LXV. *A method of making cakes exceeding fine.*

Take two whites of eggs, which beat well to a froth after having taken away their germen. Add one quarter of a pound of the fineſt flour, and as much ſugar in powder. Beat all well and add a little brandy to it and coriander-ſeed in powder. All being well mixed ſpread the paſte in a ſheet of paper, glaze it over with ſugar in powder, and put it to bake.

LXVI. *Another particular method of making cakes.*

Waſh and clean well a dozen of eggs and wipe them thoroughly dry. Then break them and take their whites only, which beat in a mortar along with their ſhells till theſe latter be perfectly diſſolved. Now add ſugar and flour, though not ſo much flour as ſugar. When all is well mixed, ſpread the paſte, which ought to be a little firm, on a ſheet of paper; and, after having glazed it, bake it in a ſlow oven.

LXVII. *A cream made without fire.*

Take one quart of double cream, in which, put four ounces of ſugar pulveriſed fine, and the quantity of one thimbleful, or two, of runnet. Stir all round together to mix it more equally and make it take the better. If the runnet be good the cream will take in one hour.

When you are ready to ſerve it on the table, raſp ſome ſugar over it, and ſpill on it a dozen drops of orange flower-water.

LXVIII. *A cream which cuts as a rice-pudding.*

Beat in a diſh two whites of eggs and one yolk, in which, while you beat, introduce by degrees one quarter of a pound of ſugar in proportion as it melts, and a pap-ſpoonful of roſe water. When that is compleated, pour in the diſh, and ſtir, a quart of milk and cream mixed half and half, then ſet it gently on warm cinders to take without boiling nor diſturbing it any more. In one hours-time it generally is ſufficiently taken. Then you colour it in paſſing a red-hot ſhovel over it. It is to be ſerved cold, after having raſped ſome ſugar on it.

LXIX. *To make an exceeding good boiled cream.*

Take cream or good new milk from the cow which boil with a crum of ſtale bread raſped very fine, and a little freſh butter. As ſoon as it begins to quake, ſtir it continually with a ſpoon; and, having diluted ſome yolks of eggs, ſtrain them through a cloth. Put as much ſalt and ſugar in your cream as you think it may require. And, when it boils and begins to riſe pour the yolks of eggs in, never ceaſing to ſtir it in order to prevent its riſing ſo far as to run over. As ſoon as you ſee it begins to render the butter take it out of the fire; and, to ſerve it, glaize it over with ſugar in powder.

LXX. *To make wipped cream.*

Take one quart of good ſweet cream, in which add one, or two, ſpoonfuls of orange flower-water and a quarter of a pound of ſugar pulveriſed very fine. Wipe it with a handful of fine white and dry willow twigs tied together on purpoſe. In proportion as it comes to a froth take it and put it in a bowl, or diſhes, to ſerve it on the table.

LXXI. *Another*

LXXI. *Another ſort of a cream.*

Peel and pound as much as poſſible, a dozen and a half of bitter almonds, wetting and diluting them at the ſame time with a little milk: then ſtrain them through a flannel and put the product of that ſqueezing among three half pints of good new milk from the cow, with one quarter of a pound of ſugar, and a few ſpoonfuls of orange flower-water. Stir all well together; and, having made it luke warm on the fire, put a little runnet in it, and mix all well. Then fill as many ſoop plates with it as you have gueſts, and put them on warm aſhes only, covered with another plate, which you now and then uſe to take up in order to ſup the moiſtneſs which riſes. When the cream is congealed, take it from off the fire and ſerve it.

This cream is that which is called by the name of *cream blanc-manger* or cuſtard, like. It may keep very well for two days, after it is done.

§. II. Of Summer Compottes, *or* ſtewed fruits.

LXXII. *The raſpberries compotte.*

Boil half a pound of ſugar into a ſyrup to *a la plume* degree, in which throw one pound of raſpberries well picked, clean and whole. Take the pan off from the fire, and let all reſt. A little while after, ſhake the pan gently in which the fruit is, and ſtir it a little, then ſet it again on the fire to boil five minutes; after which, take it off again and let it cool before ſerving. Forget not to ſkim the fruit well when in the pan. Currants admit of the very ſame preparation, and by the ſame proceſs.

LXXIII. *The apricots-compotte.*

Make a lye with pearl aſhes; and, when that lye ſhall have boiled five, or ſix, minutes, put in about a quart of green apricots, which you ſtir in gently with the ſkimmer; then take them out and throw them into cold water. Clean them well one by one of all their down, and throw them, as you go on, into another cold water. Then boil ſome water in a preſerving

ſerving pan, and put them in to blanch, till you can thruſt a pin into them eaſily. When this is the caſe pour them all in a ſieve and let them ſtrain. Then clarify a pint of ſyrup; and, when it boils, put in the apricots and boil them gently in that ſugar for ten minutes or thereabouts. Then take them out, ſtir and ſkim them; let cool and ſerve.

LXXIV. *Another way of doing the ſame.*

Put what quantity you like of apricots in a napkin with a handful of ſalt, and ſhake them backwards and forwards length ways, moiſtening them now and then with a drop or two of vinegar. By theſe means you take off the down much ſooner from them. Then waſh them in cold water: boil them afterwards to ſoftneſs, then ſkim them out from that water into cold. When they have been there a little while, pour them all into a ſieve to drain; then put them in ſugar in which they are to boil till they turn green. When they are ſuch, finiſh them quickly, take them out, and ſerve.

LXXV. *To do the ſame fruit, as well as peaches, when ripe.*

You may peel them if you like, though they taſte more of the fruit when they are not peeled. Stone them, and having ſplitted them, take the kernels away from the ſtones. Now, boil into a ſyrup half a pound of ſugar, more or leſs, according to the quantity of fruit you have to ſtew. When the ſyrup is ready, throw in the fruit and the kernels all together; boil all about one quarter of an hour, then take the pan from off the fire, ſhaking it gently to gather the ſkum together. Take this out with a card and let your fruits reſt a while to throw off their water. When you judge they may have done it, ſet them again on the fire to boil eight or ten minutes longer; and, if there be any more ſkum, take it off again, and the *compotte* is done.

LXXVI. *To make a* compotte *of the ſame fruits as above, and even plums, broiled.*

Take any quantity of either peaches, plums, or apricots: broil them on all ſides over a chaffing-diſh of bright and live coals. Peel them next as faſt as you can, and put them on a ſilver plate with one handful or two of ſugar pulveriſed, and ſufficient water only to help melting the ſugar. Set them next on the fire and boil them one minute or two, then take them out and let cool. When you are ready to ſerve them, ſqueeze the juice of a lemon, or orange, over them.

LXXVII. *To make a* compotte *of* perdrigon-*plums.*

Take off the ſkin of about two pounds of *perdrigon* plums, which throw in the mean while into cold water, then ſtrain it out and put into boiling one for about two or three minutes only after which having taken them out of this water and drained, you range them in three quarters of a pound of ſugar boiled into a pretty ſtrong ſyrup. When they ſhall have boiled eight or ten minutes in it, ſkim them, let them cool and ſerve.

Note. The *lit-de-verd*-plums are made in the ſame way. Whenever a plum is not ripe enough you may let it do a little longer in the water in which they are boiled previous to the ſyrup, taking care however they ſhould not come to maſh in it.

LXXVIII. *The ſame for* mirabelles, *purple and black* damaſk, Sainte-Catherine *and other plums.*

Take any quantity of the above-mentioned plums, we ſuppoſe two pounds. Paſs them in the boiling water without peeling them, eſpecially the *mirabelles*, then put them in a ſyrup of half a pound of ſugar, and finiſh them like the *perdrigons*.

LXXIX. *Compottes of* verjus *in grain.*

Take a pound or two of *verjus* in grain and the fineſt you can find; ſtone it carefully with the point of a tooth-pick, and throw it in the mean while into cold water. When all is done, take it out with a ſkimmer, and put it into boiling water. Then take it out from the fire, and let it cool. Skim it out again and put it in a ſyrup of one pound of ſugar, in which boil it gently over a ſlow fire; and when the *verjus* begins to turn green, finiſh it quickly like the other *compottes*, but take great care not to do the ſyrup too much.

LXXX. *Compottes of peeled* verjus.

Take the ſkin and the ſtones out of two pounds of *verjus*, and put it in a bowl, in proportion as you do it. Then clarify one pound of ſugar, which boil into a ſyrup to *a-la-plume* degree, and put in the peeled *verjus* which you boil alſo till you find it ſufficiently done. Take care not to do it too much in ſyrup for fear it ſhould turn black.

Note. Muſcadine grapes may be done juſt in the ſame manner.

LXXXI. *The compottes of pears called* muſcat, *the firſt and moſt early.*

Peel two pounds of thoſe pears, ſcrape their tails, and cut off the end of them. In proportion as you prepare them, throw them into cold water. When done, take them out and drain them. Then put them in boiling water, and, when they are ſoftened and almoſt done, take them out of that water to put them into cold again. When they have been there a while, take them out to drain, and put them afterwards in one pound of ſugar boiling, wherein leave them till the ſyrup be almoſt compleated : then remove the pan from the fire, ſtir and ſkim them. Add the juice of half a lemon ; then let cool and ſerve them.

You prepare in the ſame manner the ſorts of pears called *Rouſſelet*, *Martin-ſec*, *Jargonelle*, and *Blanquettes*. But as they are larger than the *muſcat*, you may blanch them, that is to ſay, boil them in water, before peeling.

As for the reſt, there is no ſort of difference in the proceſs of making compottes of them.

LXXXII. *The compotte of the largeſt ſorts of pears, ſuch as* Beurre, Meſſire-jean, Bergamotte, Vertelongue, Bzidery, Mouille-bouche, Amadotte, Doublefleur, Bon-chretien-d'hyver, Franc-real, *&c. &c.*

Boil in water any quantity of the above-mentioned pears, till they are done. Then peel them, core them, and throw them into cold water. Now melt a quantity of ſugar proportionable to that of your pears, in which you put them and boil to a ſyrup, as for the other ſorts of compottes. When done, take them from the fire, and ſkim them well. Squeeze over the juice of half a lemon, and ſerve them either warm or cold, as you like.

LXXXIII. *A compotte of pears* a-la-braiſe.

You may put *a-la-braiſe* all ſorts of pears, eſpecially of the large ſize above-mentioned. To do this you proceed as follows. Broil your pears over a chaffing-diſh of bright and live coals: and, when ſufficiently done, place them a moment on the naked coals, that you may peel them the more eaſy and to colour them. Then peel and core them, and put them in a weak ſyrup, in which boil them a little while but not too much.

LXXXIV. *A compotte of quinces.*

The quinces are prepared in the ſame manner when *a-la-braiſe.* The white quinces are beſt boiled in water firſt, before being put into the ſyrup, which is made with the ſame quantity of ſugar as for pears.

LXXXV. *Compotte of apples, Portugueſe faſhion.*

Cut a few apples by the middle into two halves, and core them. Then put them on a ſilver plate with ſugar under and over them. Set this plate on the ſtove with fire underneath, (and cover it with ſuch a lid as can admit, by means of a rim raiſed round it at the top,) of ſome lighted charcoals put on it. Let the apples do thus between theſe two fires till the ſugar turns all brown and in caramel, without however being burnt. Such compottes are ſerved hot.

LXXXVI. *A jelly-compotte of apples.*

Cut into quarters, pare and core, a few golden pippins, and throw them into cold water. In the mean while chop five or ſix more apples to pieces, and boil them with the parings of the others in two quarts of water. Then ſtrain all through a flannel; and, in that liquor put one pound and a quarter of ſugar, then ſet it on the fire with the quarters of pippins which you firſt prepared. Boil them thus gently for fear they ſhould maſh. When done, take the pan from off the fire, and take the quarters out of the ſyrup, one by one, and range them in order on a diſh. Then ſet your ſyrup again on the fire and boil it till it comes into a jelly, when cold you take it and lay it on your apples which you thus cover with it. This compotte may keep for five or ſix days.

LXXXVII. *A compôtte of apples* a-la-bouillonne.

Cut a few apples into two halves and core them. Range them in the pan, and for the quantity of ſix or eight apples, put one pint of water and a quarter of a pound of ſugar. Cover them over and ſet them on the fire to boil; then when the liquor is almoſt all waſted, dreſs them on a diſh and ſerve them.

The compottes of *calvil* apples are made in the ſame way.

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CHAP. XIII.

SECRETS relative to the art of taking out SPOTS and STAINS.

I. *To take off iron-molds from linen.*

PUT boiling water into a bowl and ſpread the ſtained part, or parts, of your linen over it, ſo as to let it be well penetrated with the ſteam of the water. Then rub the places with ſorrel's juice and ſalt till they are perfectly and thoroughly ſoaked with it. Such linen waſhed afterwards in the lye of wood-aſhes, will be found to return intirely free from the iron mold ſpots it had before.

II. *To take off carriage-wheel's greaſe from clothes.*

Rub the place with butter. Then with blotting paper and a hot iron, or a bit of red hot charcoals in a ſilver ſpoon, you may take all off as you would a drop of wax or tallow on a cloth.

III. *Againſt piſs-ſpots.*

Boil ſome chamberlye and waſh the place with it. Then rinſe it with clear water.

IV. *To take off all ſorts of ſpots from cloth of whatever colour it may be.*

Take half a pound of crude honey, the yolk of a new laid egg, and the bulk of a nut of ammoniac ſalt. Mix all well together, and put ſome on the ſpots which happen to be on either ſilk or cloth. After having left it there a while, waſh the place with clean water, and the ſpot will diſappear.

V. *A general receipt againſt all ſorts of ſpots, upon every ſort of ſtuff.*

A water impregnated with alkaline ſalt, black ſoap and bullock's gall, takes off extremely well the greaſy ſpots from any cloth or ſilk ſtuff.

VI. *Againſt oil-ſpots.*

Take a piece of white ſoap which you ſhave very fine and put in a quart bottle with a wide mouth and neck, half filled with lye. Add to this the bulk of a nut of ammoniac ſalt, two yolks of eggs, cabbage juice and bullock's gall a diſcretionable quantity, and in ſhort, one ounce of ſalt of tartar in ſubtile powder ſifted. Stop the bottle well, ſhake it and expoſe it to a ſouth ſun for four days. After that time, if you pour off that liquor on any oil ſpot and rub it well with it in and outſide, then let it dry, and waſh it again with clear water, or again with the following compoſition of ſoap, that ſpot will intirely diſappear.

VII. *A waſhing ball to take off ſpots.*

Take fuller's earth, or ſoft ſoap which mix and incorporate with vine bruſh aſhes, white chalk, alum and tartar pounded all together in a mortar and ſifted through a very fine ſilk ſieve. When all is made into a paſte, form your balls with it and let them dry in the ſhade. To uſe them, rub any ſpotted place with it and waſh it afterwards with clear water.

VIII. *To take out pitch and turpentine ſpots.*

Rub well the ſpot with oil of olive, which ſet to dry for one day and one night. Then, with warm water and the above waſhing ball, you will intirely ungreaſe the place.

IX. *Againſt ink-ſpots, whether on cloth or linen.*

Wet immediately the place with lemon's, or ſorrel's juice, or with white ſoap diluted in vinegar.

X. *Another more ſimple remedy againſt ink when juſt ſpilled.*

Prejudice always did, and always will, prove fatal from the minuteſt to the moſt intereſting circumſtance in life. The time which is ſpent in lamenting over an accident, juſt hppened before our own eyes, is but too often the only one which could have ſaved and prevented the dire conſequences of it, nay perhaps repaired it intirely without leaving the leaſt ſcar behind, had we ran inſtantly to the remedy. Ink never does nor can ſpoil the cloth, ſtuff, ſilk, lace or linen on which it is ſpilled, unleſs it lies there to drineſs. And it is well known, on the other hand, that if you put as much water in your ink-horn, as there is ink, you make it too pale : if twice, ſtill more ſo : if three, four, five, ſix, if twenty if fifty times ; then it will be ſuch indeed that it will be no more ink at all. What could a pint of ink do in a quart of milk ? a great deal of miſchief without doubt. But, in 50 or a 100 gallons nothing at all. By parity of reaſoning it muſt be obvious that if on the fineſt ſilk, cloth or velvet, muſlin or lace ruffles, *&c.* a whole phial of ink ſhould be ſpilled, an undeterminate greater quantity of water than there was ink, poured inſtantly on the place, by degrees and not all at once, muſt weaken it to ſuch a degree as to waſh it off at laſt intirely. What reaſoning thus once dictated naturally, reiterated experience ſince proved : therefore, here it is recommended. Senſe only and judgment muſt be conſulted in the execution. As for example, if the ink be ſpilled on a ruffle or apron, *&c.* while you have it on, let one hold the affected part between his two hands over a baſon and rub it while another is pouring gradually water from a decanter ; and let a whole pitcherful be uſed if neceſſary. If the ruffle, apron, *&c.* be at liberty and not actually worn on, the place dipped into a baſon filled with water, and there ſqueezed and dipped in again, may do ; provided you change the water in abundance, every two or three ſqueezes. If the ink be ſpilled on a green carpet table, it may immediately be taken out with a tea ſpoon ſo dexterouſly that any water at all ſhall hardly be wanted afterwards, provided it has not laid any time on it, and was only that inſtant ſpilled ; as the down of the cloth prevents the immediate ſoaking of the ink or any liquor indeed (except oil) through and through. But if it have laid ſome time, let the time be ever ſo long, provided it is ſtill wet, by pouring a little freſh clean water at a time on the place, and gathering it up each time with a ſpoon, and preſſing hard to ſqueeze it out of the cloth into the ſpoon again, you will at laſt bring it to its natural colour as if no ſuch accident had ever happened. Theſe few circumſtances explained, are ſufficient to guide any one, who has a common ſhare of good ſenſe and underſtanding, how to act on this principle in others.

XI. *Againſt oil ſpots on ſatin, and other ſilk-ſtuffs, even on paper.*

If the ſpot is freſh and juſt done, heat on the ſhovel ſome aſhes from calcined ſheep's troters, and put ſome under and upon the place. Then, laying ſomething heavy upon it, let it remain ſo for one night; the next morning the ſpot ought to be gone: but, if not quite, renew the precept.

XII. *A preparation of balls againſt ſpots.*

Take half a pound of ſoap, four ounces of clay, and one of quick lime. Dilute all with a little water, and make it into pills or ſmall balls. With theſe rub the ſpots, and waſh the place afterwards.

XIII. *For ſilks.*

If you rub the ſpots which are upon a ſilk with ſpirit of turpentine, they will diſappear: becauſe the volatility of that ſpirit exhaling into vapour, carries along with it the oil of the ſpot to which, on account of its homogeneous quality, it communicates its volatility, by penetrating and ſubdividing it infinitely.

XIV. *To reſtore gold and ſilver laces to their former beauty.*

Mix equal quantities of water, bullock's and jack's gall. With this compoſition rub your gold or ſilver and you will ſee it changing colour directly.

XV. *To reſtore Turkey carpets to their firſt bloom.*

Beat the carpet well firſt with a rod, till perfectly free from duſt. Then, if there be any ſpot of ink, take them out with a lemon, or with ſorrel; and waſh the place afterwards with clear water. Shake the reſt of the water off, and let it dry where you rubbed it with any. When dry, rub the carpet very hard all over with the ſmoaking hot crum of a white loaf: and, when you find in the evening, the ſkies clear and a likelyhood of being a fine night, let the carpet be put out for two or three ſuch nights.

XVI. *To make tapeſtries reſume their firſt brightneſs, when their colours have been tarniſhed and ſpoiled.*

Shake and clean well the tapeſtry by rubbing it all over with white chalk which you leave on it for about one day. Next, with a rough hair bruſh, get all that chalk out again, and put on freſh, which leave as before. Then with the ſame rough hair bruſh get this out alſo, and beat it ſoundly with a rod, and bruſh it afterwards with the ſoft cloth-bruſh. This operation will reſtore a tapeſtry to its priſtine ſtate.

XVII. *To take off all the ſpots of wax from velvet of any colour, except the crimſon.*

Take the crum of a ſtale loaf, and cut a thick ſlice out of it, which toaſt, and apply, while burning hot, on the ſpot of wax; when cooled, renew it till all the wax is ſoaked out of the velvet.

XVIII. *To take the ſame off from ſilks and camblet.*

Put on each wax ſpot, ſome ſoft ſoap, and ſet in the ſun till grown warm; then, by waſhing the place with clean water, the ſpot will diſappear.

XIX. *To waſh a gold or ſilver, or ſilk embroidery, on either linen, or any ſtuff whatever, and render it like new.*

Take bullock's gall, one pound; ſoap and honey, three ounces of each; and Florentine orrice, about the ſame quantity in ſubtile powder. Put all in a glaſs veſſel, in which mix it well, into a paſte, and let it be expoſed for ten days in the ſun. When you are ready to uſe it make an infuſion of bran, which boil in water and ſtrain through a cloth. Then ſmear the work over with the above-deſcribed paſte, in ſuch places as you want to clean, and waſh them afterwards with the ſaid bran water, renewing this till it receives no more alteration in its colour. Wipe then well the places with a white cloth; and wrap the work in a clean napkin to ſet it in the ſun to dry, after which paſs it through the poliſhing and luſtring preſs, and the work will be as fine and bright as when new.

XX. *To take the ſpots off from ſilk and woollen ſtuffs.*

Take French ſtarch, without any mixture of indigo or blue whatever, which dilute in a cup with good brandy, like a thick pap. Of this paſte, put on each ſpot, and, when dry, rub it off and bruſh it. If the ſpot is not quite gone at the firſt time, renew the operation, and it certainly will at the ſecond.

XXI. *To colour velvet in red.*

Take four ounces of adragant, and one of Arabick gums, both of which pulveriſe. Put this powder in clean water, wherein let it diſſolve for two or three days. After which time, ſteep a ſponge in the liquor, and rub the wrong ſide of the velvet. If, after being dry, you find it not high-coloured enough, renew it and the effect will ſurpriſe you.

XXII. *To revive the colour of a cloth.*

Pour one quart of water on one pound of burnt potaſhes. Twelve hours after decant the water off in another veſſel, and put in a handful of dry moth-mullein's leaves, with two bullocks galls. Boil all together till the leaves go to the bottom. Then ſet this water for a few days in the ſun. Then putting in it whatever colour you want, boil it along with the cloth in that lye, and let it thus ſoak afterwards for fourteen or fifteen days, then the cloth will have reſumed its primary colour.

XXIII. *To take the ſpots off from a white cloth.*

Boil two ounces of alum for half an hour, in a pint or a pint and a-half of water; then put in a piece of white ſoap, with another pound of alum; and, having ſoaked thus three days in the cold, you may with it, waſh all the ſpots of any white cloth whatever.

XXIV. *To*

XXIV. *To take off the ſpots from crimſon and other velvets.*

1. Take one pint of lye made of vine-branch aſhes, in which diſſolve half an ounce of alum's dregs. When ſettled, ſtrain it through a cloth; then take another drachm of alum, half a drachm of Spaniſh, and as much of ſoft ſoap; a ſcruple of common, and half a drachm of ammoniac ſalts; a calf's gall, and a little celandine's juice. All being well mixed, ſtrain and keep it for uſe.

2. Before uſing, take the quantity you think to have need of in a cup, in which put a little Braſil wood and *bourre d'ecarlatte* (or goat's hair from the dyers, dyed with madder) to boil a bubble or two, then ſtrain through a cloth. In that ſtate, your preparation will be fit to take off all the ſpots from crimſon either cloth or velvet.

Note. For cloths or velvets of other colours, tinge your liquor with *bourre*, or goat's hair, of the ſame colour.

XXV. *To take off an oil ſpot from cloth.*

Take oil of tartar which put on the ſpot, then waſh it immediately, firſt with lukewarm water, then with two or three cold waters, and it will be perfectly cleanſed.

XXVI. *A compoſition of ſoap to take off all ſorts of ſpots.*

1. Take one pound of *Venetian* white ſoap, ſix yolks of eggs, and half a ſpoonful of ſalt pounded. Incorporate all together with a ſufficient quantity of the juice from the leaves of white beet. Make this compoſition into ſmall cakes, which dry in the ſhade.

2. To uſe them, wet the place of the cloth where the ſpot is, with clear water, and rub it over on both ſides with the ſaid ſoap; then, waſhing it, the ſpot will diſappear.

XXVII. *To take the ſpots off from a white ſilk or crimſon velvet.*

Wet the place well with brandy of three rectifications, or with the very beſt ſpirit of wine, then ſmear it over with the white of an egg, and ſet it to dry in the ſun.

When dry, waſh the place with clean water, paſſing and ſqueezing it between your fingers; and, if the ſpot is not gone at the firſt operation, it will not fail at the ſecond, therefore renew it again.

FINIS.

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